Using the Passport 8672ATM Module

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Preface

The Passport® 8672ATM Module is part of the Nortel Networks Passport 8600 Series line of communications products. This module is the Passport Asynchronous Transfer Mode (ATM) module for the Passport 8600 chassis. This guide describes the features and operations of the module and provides instructions for installing and managing the module.

Before you begin

This guide is intended for network installers and system administrators who are responsible for installing, configuring, or maintaining networks. This guide assumes that you have the following background:

- Understanding of the transmission and management protocols used on your network
- Experience with windowing systems or graphical user interfaces (GUIs)

Text conventions

This guide uses the following text conventions:

angle brackets (< >)	Indicate that you choose the text to enter based on the description inside the brackets. Do not type the brackets when entering the command.
	Example: If the command syntax is `ping <ip_address>`, you enter `ping 192.32.10.12`
bold Courier text	Indicates command names and options and text that you need to enter.
	Example: Use the **dinfo** command.
	Example: Enter **show ip** {**alerts**|**routes**}.
braces ({ })	Indicate required elements in syntax descriptions where there is more than one option. You must choose only one of the options. Do not type the braces when entering the command.
	Example: If the command syntax is `show ip {alerts|routes}`, you must enter either **show ip alerts** or **show ip routes**, but not both.
brackets ([ ])	Indicate optional elements in syntax descriptions. Do not type the brackets when entering the command.
	Example: If the command syntax is `show ip interfaces [-alerts]`, you can enter either **show ip interfaces** or **show ip interfaces -alerts**.
ellipsis points (. . .)	Indicate that you repeat the last element of the command as needed.
	Example: If the command syntax is `ethernet/2/1 [<parameter> <value>]...`, you enter **ethernet/2/1** and as many parameter-value pairs as needed.

italic text	Indicates new terms, book titles, and variables in command syntax descriptions. Where a variable is two or more words, the words are connected by an underscore.
	Example: If the command syntax is `show at <valid_route>`, *valid_route* is one variable and you substitute one value for it.
`plain Courier text`	Indicates command syntax and system output, for example, prompts and system messages.
	Example: `Set Trap Monitor Filters`
separator (>)	Shows menu paths.
	Example: Protocols > IP identifies the IP command on the Protocols menu.
vertical line (|)	Separates choices for command keywords and arguments. Enter only one of the choices. Do not type the vertical line when entering the command.
	Example: If the command syntax is `show ip {alerts|routes}`, you enter either **show ip alerts** or **show ip routes**, but not both.

Related publications

For more information about the Passport 8600 Series products and management software, refer to the following publications:

*   *Getting Started with the Passport 8000 Series Management Software*
    (part number 209663-C)

    Outlines the procedures for installing and booting your Passport 8600 Series 8000 series switch, as well as instructions for installing the Passport 8672ATM Module.

*   *Reference for the Passport 8000 Series Management Software Switching Operations Release 3.1* (part number 207414-D)

    Describes how to use Device Manager to configure and manage switching functions with the Passport 8600 Series switch, including procedures and illustrations of pertinent screens.

*   *Reference for the Passport 8000 Series Management Software Routing Operations Release 3.1* (part number 207415-C)

    Describes how to use Device Manager to configure and manage routing functions with the Passport 8600 Series switch, including procedures and illustrations of pertinent screens.

*   *Networking Concepts for the Passport 8000 Series Switch*
    (part number 207307-C)

    General information and description of how the Passport 8000 Series switch handles various networking features such as VLANs, MultiLinkTrunking, OSPF, RIP, IPX, ATM, and SONET.

*   *Passport 8000 Series Network Design Guidelines Release 3.0 Implementation Notes* (part number 210128-A)

    Provides guidelines for using the switching and routing features of the Passport 8000 Series switches and software to design effective networks.

*   *Using the Passport 8100 Modules* (part number 204515-D)

    Provides information about the Passport 8100 module, including descriptions of operational features, installation instructions, basic setup procedures, and technical specifications.

- *Using the Passport 8600 Modules* (part number 207306-C)

  Provides information about the Passport 8600 module, including descriptions of operational features, installation instructions, basic setup procedures, and technical specifications.

- *Using the Passport 8672ATM Module* (part number 209195-A)

  Describes hardware features, installation instructions, and specific management procedures for the Passport [Model #].

- *Using the Passport 8683POS Module* (part number 209564-A)

  Describes hardware features, installation instructions, and specific management procedures for the Passport 8600 Series 8683POS Module.

- *Reference for the Passport 8000 Series Command Line Interface Switching Operations Release 3.1* (part number 207308-D)

  Describes how to use the CLI to configure and manage switching functions with the Passport 8000 Series switch, including procedures and illustrations of pertinent commands.

- *Reference for the Passport 8000 Series Command Line Interface Routing Operations* (part number 208967-C)

  Describes how to use the CLI to configure and manage routing functions with the Passport 8000 Series switch, including procedures and illustrations of pertinent commands.

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North America	(800) 2LANWAN or (800) 252-6926
Asia Pacific	(61) (2) 9927-8800
China	(800) 810-5000

An Express Routing Code (ERC) is available for many Nortel Networks products and services. When you use an ERC, your call is routed to a technical support person who specializes in supporting that product or service. To locate an ERC for your product or service, go to the www12.nortelnetworks.com/ URL and click ERC at the bottom of the page.

Chapter 1
About the Passport 8672ATM Module

The Passport 8672ATM Module provides network transmission using ATM technology. The Passport 8672ATM Module enables MAN/WAN/campus connectivity for the Passport 8600 Routing Switch with the capability to interconnect frame-switched networks using a backbone ATM network. The module also provides existing ATM customers with the capability for connectivity to the Passport 8600 Routing Switch. (For more information on ATM, refer to the ATM Forum Web site at the *http://www.atmforum.com* URL.)

The Passport 8672ATM Module occupies a single slot in a Passport 8600 series chassis. The module is a baseboard with room for two of the following optional Media dependent adapters (MDAs):

- 1-port OC-12c/STM-4: single-mode fiber (SMF) or multimode fiber (MMF) using the Synchronous Optical Network (SONET/SDH**)** media
- 4-port OC-3c/STM-1: SMF or MMF using SONET media

The Passport 8672ATM Module for the Passport 8000 series chassis can be used as an edge device for WAN connectivity in the data center; it is used to connect Passport 8600 to public or private ATM networks. You can also use the Passport 8672ATM Module in the wiring closet in inter-building connection technology in campus networks where each building is supported by frame-switched networks.

Another network application of the Passport 8672ATM Module is a direct connection between one Passport 8600 series switch with a Passport 8672ATM Module in one building to an identical module in another Passport 8600 Series switch at another building. You connect the switches with a dedicated fiber link or with a SONET multiplex network. Each building may be individually supported by either frame-switched or ATM technology.

You can use up to two Passport 8672ATM Modules in one Passport 8600 series chassis.

Refer to *Networking Concepts for the Passport 8000 Series Switch* for a thorough discussion of the complete functionality of the Passport 8000 series product line, including the Passport 8672ATM Module. Note that Spanning Tree Groups (STGs), VRRP, DiffServ, and ATM QoS are not supported on this module.

This chapter provides the following information about the Passport 8672ATM Module:

- "Features," next
- "Physical description" on page 26

Features

The Passport 8672ATM Module has the following features:

- RFC 1483 ATM PVC support
  — Bridged PVC
  — IP routed PVC
  — IPX routed PVC
- Both RFC 1483 LLC/SNAP encapsulation and Null encapsulation
- RFC 1483 point-to-point bridging—up to 64 PVCs per ELAN
- MLT using bridged RFC 1483 PVCs
- VBR traffic shaping per port
- Front-panel Online LED to monitor module operation
- Ability to remove and install a module (hot-swap) without resetting the switch (MDAs are not hot-swappable)
- AAL 5
- Hardware diagnostics
- Proprietary MIB support for configuration of RFC 1483 and ATM port specific setup
- Manageable through the Passport CLI or Device Manager, the SNMP-based graphical interface
- Monitored through a World Wide Web browser from anywhere on the network.

ATM ELANs, and Ethernet VLANs

The Passport 8672ATM Module supports ATM Forum Emulated LANs (ELANs). An ELAN extends an Ethernet VLAN, which is a broadcast domain, over an ATM network.

In general, there is a one-to-one mapping between an ATM ELAN and an Ethernet VLAN. An ATM ELAN never spans more than one ATM port because the software considers each ATM port completely separate.

The Passport 8672ATM Module participates in ELANs as RFC 1483 PVCs. Only Ethernet ELANs are supported on this module**.**

If you delete a VLAN, you delete 1483 ELANs associated with the VLAN.

Virtual network router

Virtual network router (VNR) refers to the routing functions between two ATM virtual/emulated networks. You can use the Passport 8672ATM Module as an IP- and IPX-optimized VNR.

Traffic shaping

The Passport 8672ATM Module supports traffic shaping, which is enabled or disabled on a port-by-port basis. Where it is enabled, a single traffic rate is enforced for those ports. The maximum available rate for traffic shaping does not exceed the maximum rate for the slowest interface on the module. Traffic shaping is disabled by default. Traffic shaping is performed at the port level and not at the PVC level.

The module provides support for unspecified bit rate (UBR) and variable bit rate (VBR), both real-time and non-real-time; it does not support available bit rate (ABR) or constant bit rate (CBR). Traffic shaping per port is supported on all permanent virtual circuits (PVCs).

RFC 1483 Support

The system software on the Passport 8672ATM Module supports the configuration of RFC 1483 LAN clients with multiprotocol encapsulation. RFC 1483 supports standards-based methods of encapsulation that enable connectivity with third-party ATM devices. Multiprotocol encapsulation provides the capability to set up PVCs between Centillion ATM virtual ports (VPorts) and other clients based on LLC encapsulation. The current Centillion platform only supports bridged variations of RFC 1483.

The Passport 8672ATM Module supports the following types of RFC 1483 ELANs:

- RFC 1483 bridged 802.3. The links can be set up within a single device or with another switch. Multiple RFC 1483 links can be set up within one ELAN. In all cases, the PVCs must be set up without loops; STP must be disabled. Both LLC and NULL encapsulation are supported.
- RFC 1483 routed IP and IPX. An RFC 1483 routed VLAN always contains only one PVC, corresponding to a point-to-point link between routers. The ATM ELAN is bridged to a single Ethernet VLAN. The software adds and removes the MAC header, as appropriate. When configuring an IP and IPX routed circuit, the ATM port must be the only port assigned to the VLAN. ATM ports do not support bridge/router (BROUTER) configurations.

Physical description

The Passport 8672ATM Module (Figure 1) is a single-slot module for the Passport 8600 Series chassis. Online LEDs indicate module operation.

Figure 1   Passport 8672ATM module

9901EA
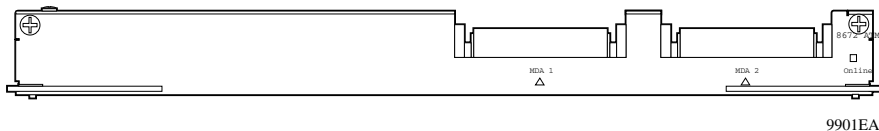
To configure and manage the Passport 8672ATM Module, connect to the Passport 8690SF Module. For information on connecting to the Passport 8690SF console port, refer to *Using the Passport 8600 Modules*.

Media dependent adapters

The Passport 8672ATM Module has space for two media dependent adapters MDAs) that have their own LEDs. You can use up to two of the following MDAs with the Passport 8672ATM Module:

- 1-port OC-12c/STM-4: SMF or MMF using SONET media
- 4-port OC-3c/STM-1: SMF or MF using SONET media

You can mix these MDAs on the Passport 8672ATM Module. Contact your Nortel Networks representative for other MDAs that are available for this product.

Figure 2 shows the OC-12c/STM-4 MDA, and Figure 3 shows the OC-3c/STM-1 MDA.

Figure 2 1-port OC-12c/STM-4 MDA

9725EA
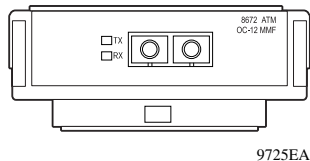
Figure 3 4-port OC-3c/STM-1 MDA

9726EA
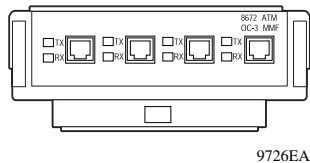
Figure 4 shows the Passport 8672ATM Module with one OC-12c/STM-4 MDA installed. For information on installing the MDAs, refer to *Installing the Passport 8672ATM Module MDAs.*

Figure 4   Passport 8672 ATM module with OC-12c/STM-4 MDA

9724EA
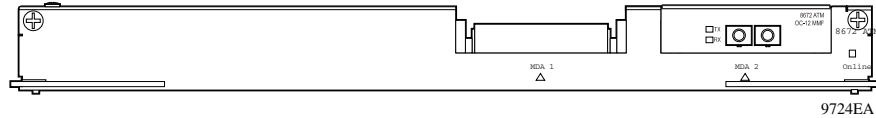
Online LED

The front panel of the Passport 8672ATM Module has an Online LED that indicates whether or not the module has power applied and is initialized correctly.

When the Passport 8672ATM Module is first inserted into the chassis, the Online LED turns amber until the board is recognized by the system and passes a power-on self-test. If the module fails the self-test, the light is off. When the board passes the self-test and goes online, the LED illuminates a solid green.

→ **Note:** You cannot configure the Passport 8672ATM Module until the online LED on the module is steadily lit green and you have inserted at least one MDA.

Table 1 lists the Passport 8672ATM Module online LED indications.

Table 1   Passport 8672ATM Module online LED indications

Online LED	State
Off	Card is not receiving power.
Amber	Card is initializing or downloading.
Amber	Card is offline.
Green	Card is online.

MDA LEDs

Table 2 lists the MDA LED indications.

Table 2   MDA LED indications

LED	Color	Port State
Tx	Amber	Alarm (RDI) condition, admin state down
Tx	Green	Transmitting data
Tx	Off	No traffic, no alarm
Rx	Amber	Alarm (OOF/LOF/LOS) condition, admin state down
Rx	Solid green	Admin stateup
Rx	Flashing green	Receiving data
Tx and Rx	Flashing amber	Admin state down, out of order

➡ **Note:** When there is continuous traffic, the Tx LED is solid green. If traffic is slow, the Tx LED may be flashing green.

Console and Diag ports

Use the Console port on the Passport 8690 SF module to access management functions for the Passport 8672ATM Module. For information on connecting to the Console port on the Passport 8690 SF module, refer to *Getting Started with the Passport 8000 Series Management Software*.

The Diag port on the Passport 8672ATM Module is used *only* by Nortel Networks personnel for debugging purposes. You can see diagnostic messages but you cannot input any text.

Chapter 2
Passport 8672ATM Module technology overview

This chapter contains the following information:

ATM terms and acronyms

Asynchronous transfer mode (ATM) is a connection-oriented, cell-based technology that relays traffic across a network. ATM provides a cost-effective way of transmitting voice, video, and data across a network at high speeds. It offers topology-independent, resilient networking technology.

An ATM cell is a fixed-length packet of 53 bytes. It consists of a 5-byte header containing address information and a fixed 48-byte information field. The fixed-length cell size allows you to predict network delays.

The following terms and acronyms are frequently used with ATM information:

*   ATM: Asynchronous transfer mode. ATM is a switched, connection-oriented, fixed-length, cell-based transmission method specifically designed to run at high data rates and to carry a complete range of user traffic, including voice, data, and video. ATM uses dedicated media connections running in parallel, allowing simultaneous multiple connections through a single switch device at very high speeds.
*   PVC: Permanent virtual circuit. Dedicated connection between devices that is manually set up.
*   SVC: Switched virtual circuit. On-demand connection between an ATM or frame relay source and destination that lasts for the duration of the transmission.

- VC: Virtual circuit. This is a network service that provides connection-oriented service regardless of the underlying network structure.
- VP: Virtual path. A virtual path is a set of virtual channels between a common source and destination. The virtual channels in a virtual path are logically associated with a common identifier, the virtual path identifier.
- VPI: Virtual path identifier. Identifier contained in the ATM cell header to designate the virtual path on the physical ATM link.
- VCI: Virtual circuit identifier. Address or label contained in the ATM cell header to designate the virtual circuit within the virtual path on the physical ATM link
- ELAN: Emulated LAN. Following the ATM Forum specification, ELANs make connection-oriented ATM networks look like connectionless LANs.
- UBR: Unspecified bit rate. UBR is an ATM service category that does not specify traffic-related service guarantees. No numerical commitments are made with respect to the cell loss ratio or to the cell transfer delay.
- VBR: Variable bit rate. VBR is an ATM Forum-defined service category that supports variable bit rate data traffic with average and peak traffic parameters.
- PCR: Peak cell rate. The PCR, in cells/second, is the maximum cell rate.
- SCR: Sustainable cell rate. The SCR is an upper bound on the cell rate that is long relative to that of the PCR. Enforcement of this bound by the Usage Parameter Control allows the network to allocate sufficient resources, but less than those for the PCR, to ensure that the specified cell loss ratio can be achieved.
- MBS: Maximum burst size. The signaling method determines the MBS, which is coded as a number of cells, that can be transmitted at peak rate and still conform to the overall algorithm.

Data transmission (also called cell switching) through the ATM network relies on establishing logical connections between ATM devices. ATM is a connection-oriented service, which means that an ATM device cannot transmit information until it establishes a connection with a receiving device.

SONET terms and acronyms

This section provides a brief listing of common Synchronous Optical Network (SONET) terms. SONET is a medium for transmitting data that uses fiber optic cables.

The following terms and acronyms are frequently used with SONET information:

- SONET: Synchronous Optical Network. SONET is a family of fiber optic transmission rates that provides the flexibility to transport many digital signals with different capacities. This ANSI standard provides for transmission from OC-1 to OC-48 and greater.

- SDH: Synchronous Digital Hierarchy. SDH is a standard technology for optical fiber-based synchronous data transmission. SDH is the international equivalent of SONET.

- OC-3: Optical Carrier-level 3. OC-3 is an optical fiber transmission system at 155 Mb/s.

- OC-3c/STM-1: Optical Carrier-level 3 concatenation. OC-3c/STM-1 is an optical fiber transmission system that carries STS-3c/STM-1 frame structures at 155 Mb/s. Concatenation refers to the fact that there is only one logical data stream (rather than supporting a channelized structure).

- OC-12: Optical Carrier-level 12. OC-12 is an optical fiber transmission system at 622 Mb/s.

- OC-12c/STM-4: Optical Carrier-level 12 concatenation. OC-12c/STM-4 is an optical fiber transmission system that carries STS-12c/STM-4 frame structures at 622 Mb/s. Concatenation refers to the fact that there is only one logical data stream (rather than supporting a channelized structure).

SONET transmission rates

The following transmission rates are commonly used with SONET:

- OC-3c/STM-1: 155.52 Mb/s (and SDH/STM-1)
- OC-12c/STM-4: 622.08 Mb/s (and SDH/STM-4)

The SONET specification defines optical both as:

- Single-mode fiber (SMF)
- Multimode fiber (MMF)

→ **Note:** The estimated maximum transmission distance for OC-3c SMF is 20 kilometers (km); for OC-3c MMF is 2 km; for OC-12c SMF is 15 km; for OC-12c MMF is 500 m.

Chapter 3
Installing the Passport 8672ATM Module

This chapter describes the procedure for installing the Passport 8672ATM Module. It covers the following topics:

For more information about the Passport 8600 chassis, refer to the following documents:

- *Getting Started with Passport 8000 Series Management Software*
- *Using the Passport 8600 Modules*
- *Installing the Passport 8600 Modules*

Safety and environmental precautions

Before you begin performing any installation or replacement procedure on the Passport switch, please note the following safe handling guidelines:

- To prevent damage caused by electrostatic discharge (ESD), handle the switch chassis and modules only when you, the chassis, and the chassis modules are properly grounded. Nortel Networks recommends the use of a grounding wrist strap.

• When handling modules, do not touch components on the modules; always handle modules by their edges. Store unused modules in their protective packaging.

⚠ **Warning:** Fiber optic equipment can emit laser or infrared light that can injure your eyes. Never look into an optical fiber or connector port. Always assume that fiber optic cables are connected to a light source.

⚠ **Warning: Vorsicht:** Glasfaserkomponenten können Laserlicht bzw. Infrarotlicht abstrahlen, wodurch Ihre Augen geschädigt werden können. Schauen Sie niemals in einen Glasfaser-LWL oder ein Anschlußteil. Gehen Sie stets davon aus, daß das Glasfaserkabel an eine Lichtquelle angeschlossen ist.

⚠ **Warning: Avertissement:** L'équipement à fibre optique peut émettre des rayons laser ou infrarouges qui risquent d'entraîner des lésions oculaires. Ne jamais regarder dans le port d'un connecteur ou d'un câble à fibre optique. Toujours supposer que les câbles à fibre optique sont raccordés à une source lumineuse.

⚠ **Warning: Advertencia:** Los equipos de fibra óptica pueden emitir radiaciones de láser o infrarrojas que pueden dañar los ojos. No mire nunca en el interior de una fibra óptica ni de un puerto de conexión. Suponga siempre que los cables de fibra óptica están conectados a una fuente luminosa.

⚠ **Warning:** Avvertenza: Le apparecchiature a fibre ottiche emettono raggi laser o infrarossi che possono risultare dannosi per gli occhi. Non guardare mai direttamente le fibre ottiche o le porte di collegamento. Tenere in considerazione il fatto che i cavi a fibre ottiche sono collegati a una sorgente luminosa.

⚠

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Installing the Passport 8672ATM Module

To install the Passport 8672ATM Module:

1   Remove the filler panel from the module slot in the Passport 8600 series chassis (Figure 5).

Figure 5   Removing the filler panel
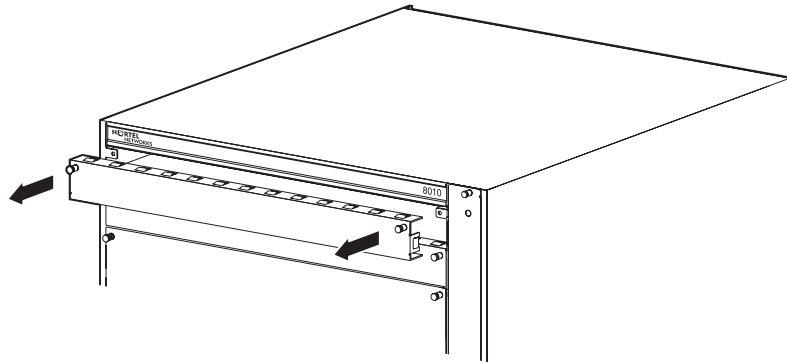
9058FB

2   Make sure the inserter/extractor levers are extended away from the Passport 8672ATM Module front panel (Figure 6).

Figure 6   Extending the inserter/extractor levers
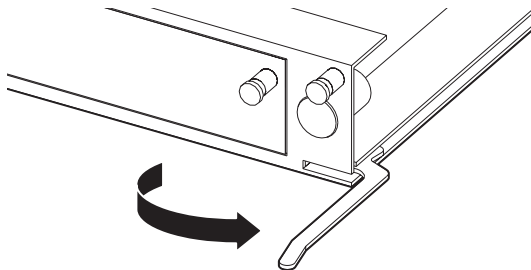
9059FA

.

> **Note:** Always handle an I/O module by the sides and carefully slide it out of the chassis. Place the module on a grounded work surface and in an antistatic bag for storage.

3 Handling the Passport 8672ATM Module by the sides only, carefully align it with the card guides in the chassis. Slide the module into the slot until the module connectors touch the chassis backplane (Figure 7).

Figure 7 Inserting the Passport 8672ATM Module
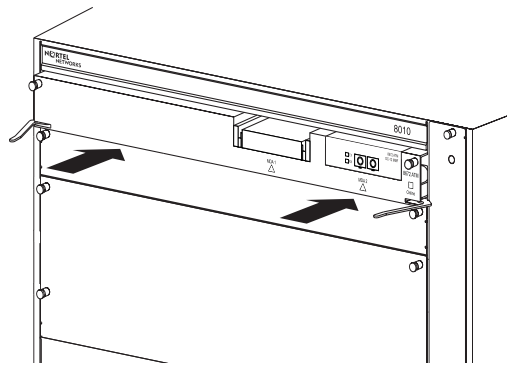
10036FA

4 Rotate the inserter/extractor levers to seat the backplane connectors (Figure 8).

Figure 8   Closing the inserter/extractor levers

10037FA
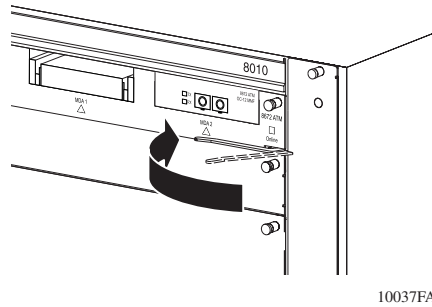
5   Tighten the retaining screws (Figure 9).

Figure 9   Tightening the retainer screws

10038FA
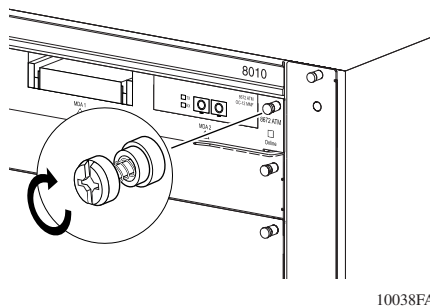
You must install at least one MDA on the Passport 8672ATM Module in order to pass traffic. For instructions on installing MDAs, refer to *Installing the Passport 8672ATM Module MDAs.*

For information on configuring and managing the Passport 8672ATM Module, refer to Chapter 4, "Managing the Passport 8672ATM Module with Device Manager," on page 47, to Chapter 5, "Managing the Passport 8672ATM Module with the CLI," on page 73, and to Chapter 6, "Configuring the Passport 8672ATM Module," on page 115.

Verifying installation

The Passport 8672ATM Module front panel has an Online LED that indicates whether or not the module has power applied and is initialized correctly. For information on online LEDs, see "Online LED" on page 28.

> **Note:** You cannot configure the Passport 8672ATM Module until the online LED on the module is steadily lit green and you have inserted at least one MDA.

Initialization

When the Passport 8672ATM Module is installed into a Passport 8600 series chassis, ensure that the Passport 8690SF module in the same chassis has a PCMCIA card inserted and that the PCMCIA card contains the p80t3100.dld image, which supports the Passport 8672ATM Module. For more information about the PCMCIA slot and the Passport 8690SF module, refer to *Using the Passport 8600 Modules*.

The Passport 8690SF module retrieves the image file p80t3100.dld to download to the Passport 8672ATM Module. First, the Passport 8690SF module searches the host flash memory for the file, then the PCMCIA card. The Passport 8690SF module downloads the image file to the Passport 8672ATM Module and identifies which MDAs are installed. The screen displays following message:

```
Using image = /slot/p80t3100.dld for ATM card download.
ATM card: Slot 4 MDA [OC-12c MM] [Quad OC-3c MM] Ver=2.2
```

If the image file is not found in either the flash memory or the PCMCIA, the system stops and the screen displays an error message such as:

```
ERROR Task=rcStart Couldn't find an ATM download image!
Aborting card initialization in Slot=4
```

or:

```
ERROR Task=rcStart portPresent:port=X/X, invalid port Type
```

The Passport 8672ATM Module requests a redownload from the Passport 8690SF module, and the screen displays the following message:

```
Redownload requested by ATM card in slot <number>.
```

If the image download is unsuccessful, the screen displays the following message:

```
ATM card in slot <number> not ready.
```

If there are three unsuccessful attempts to download, the screen displays the message shown in Figure 10.

Figure 10 Unsuccessful download screen output

```
Copyright (c)  1998-2001 Nortel Networks, Inc.
CPU Slot 6:    PPC 740 Map B
Version:       1.0.0.2/3
Creation Time: Jun 29 2000, 23:24:35
Hardware Time: AUG 09 2000, 14:02:57 UTC
Memory Size:   0x04000000
Start Type:    cold
CENTENNIAL     ATA
/flash/  - Volume is OK
Loaded boot configuration from file /flash/boot.cfg
Press <Return> to stop auto-boot...
/pcmcia/  - Volume is OK
2744752 to 12936388 (12936388)
Starting at 0x10000...
CENTENNIAL     ATA
Passport 8600 System Software Release REL3.1.0.0_B022
Copyright (c) 1996-2000 Nortel Networks, Inc.
Waiting for cpu in slot 5 ... 2 seconds
[08/09/00 14:03:13] System boot
/pcmcia/  - Volume is OK
[08/09/00 14:03:13] Passport System Software Release REL3.1.0.0_B022
[08/09/00 14:03:15] Card inserted: Slot=1 Type=8624FX
[08/09/00 14:03:15] Card inserted: Slot=2 Type=8648TX
[08/09/00 14:03:15] Card inserted: Slot=3 Type=8608SX
[08/09/00 14:03:15] Card inserted: Slot=4 Type=8608AT
[08/09/00 14:03:18] Initializing 8624FX in slot #1 ...
[08/09/00 14:03:19] Initializing 8648TX in slot #2 ...
[08/09/00 14:03:21] Initializing 8608SX in slot #3 ...
[08/09/00 14:03:24] Initializing 8608AT in slot #4 ...
/flash/  - Volume is OK
[08/09/00 14:03:30] ERROR Task=rcStart Couldn't find an ATM download
image! Aborting card initialization in Slot=4!
[08/09/00 14:03:30] Initialization of card failed for Slot 4 !
[08/09/00 14:03:30] Loading configuration from /flash/config.cfg
[08/09/00 14:03:30] The system is ready
[08/09/00 14:03:30] ERROR Task=rcStart smMsgSend: failed, DataLength
(0)too large
*******************************
* Nortel Networks, Inc.       *
* Copyright (c) 1996-2000      *
* All Rights Reserved         *
* Passport 8006               *
* Software Release REL3.1.0.0_B02
*******************************
Login: [08/09/00 14:04:15] Sending Cold-Start Trap
```

After the image loads onto the Passport 8672ATM Module, it performs a series of self-diagnostic tests. If the module fails the diagnostics, the screen displays the following message:

```
Fatal bring up error on ATM card in slot <number>.
```

If you see this message, contact a service representative. For information on contacting service representatives, refer to "How to get help" on page 22.

When the image successfully loads onto the Passport 8672ATM Module, the screen displays the following message:

```
ATM card in slot <number> is online.
```

The Passport 8690SF module can download the image to two Passport 8672ATM Modules in the same Passport 8600 series chassis simultaneously.

> **Note:** If you accidentally delete the image file, reset the card and redownload the file. For information on how to reset the card, see "Resetting the module" on page 54.

If you have one MDA installed, you can proceed to configure the Passport 8672ATM Module.

> **Note:** You must save your configuration (using either the CLI or Device Manager) to preserve the configuration changes you made to the Passport 8672ATM Module across reboots.

MDA insertion and configuration

Once you insert an MDA, you must complete some basic configuration tasks for the Passport 8672ATM Module to begin switching operations as soon as it completes initialization. For information on installing MDAs, refer to *Installing the Passport 8672ATM Module MDAs.*

To verify that the Passport 8672ATM Module is ready to receive and transmit traffic, check the LEDs on the module and the MDA. Once you enable the ports using the CLI or Device Manager, the online LED on the module lights steady green, and the module is ready. See "Online LED" on page 28 and "MDA LEDs" on page 29.

For information on enabling ports, refer to "Enabling or disabling a port" on page 58.

You configure and manage the Passport 8600 series switch operation for your network using the command line interface (CLI) or SNMP-based network management software, such as Device Manager. For information on configuring and managing the Passport 8672ATM Module, refer to Chapter 4, "Managing the Passport 8672ATM Module with Device Manager," on page 47, to Chapter 5, "Managing the Passport 8672ATM Module with the CLI," on page 73, and to Chapter 6, "Configuring the Passport 8672ATM Module," on page 115.

Factory default settings for the Passport 8672ATM Module are shown in Appendix B, "Factory defaults," on page 145.

Replacing a module

You can hot-swap Passport 8672ATM Modules as long as the module you are inserting has the same MDAs installed as the module you are replacing. In this case, the system saves the previous configurations. If you hot-swap the module with a module that has *different* MDAs installed, you must reconfigure the module.

If you are hot-swapping modules, read the following section for information about how the routing switch recognizes replacement modules and how to avoid potential problems.

> ⚠ **Warning:** The Passport 8672ATM Module itself is hot-swappable; the MDAs necessary to pass traffic on the module are *not* hot-swappable.

Starting the system after a module replacement

After you a replace a module on the chassis, you can expect the following results:

- In a running system, when you replace an I/O module with a module of the same type, the system restores the configuration of all the ports.
- When you replace a module with one of a different type, the system discards the configuration of the old ports, and the new ports are added to either the default VLAN or a null VLAN, depending on the operating mode of the switch.
- When you save the configuration in nonvolatile random access memory (NVRAM), turn off the switch, replace a module with a different module type, and turn the system on again, the system discards the configuration of the old ports, and adds new ports to either the default VLAN or an unassigned VLAN, depending on the operating mode of the switch.

Starting the system with an empty slot

When you save the configuration in NVRAM, shut down the system, remove a module, turn on the chassis *with that slot empty*, and then populate the slot with a module of the same type as the one previously there, the system is *not* able to restore the original configuration.

Chapter 4
Managing the Passport 8672ATM Module with Device Manager

Two management tools enable you to manage your Passport 8672ATM Module: Device Manager and the command line interface (CLI). You can also use the embedded Web-based management feature to monitor the 8672ATM Module.

This chapter contains information on these topics:

- "Port numbering," next
- "Device Manager" on page 48

Refer to Chapter 5, "Managing the Passport 8672ATM Module with the CLI" for information about managing your Passport 8672ATM Module with the CLI and monitoring the module with the Web-based management features.

Port numbering

You must install an MDA into the Passport 8672ATM Module in order to have connectivity. The module contains two slots for MDAs, and you can mix and match among the following MDAs, which are available in both SMF and MMF:

- 1-port OC-12c/STM-4
- 4-port OC-3c/STM-1

The management systems identify an interface by its slot number (in the Passport 8600 series chassis) and its port number, using the syntax slot number/port number (s/p). The Passport 8672ATM Module can contain up to eight ports when two 4-port MDAs are inserted. Port numbers 1 to 4 are reserved for the MDA in the left slot regardless of the actual physical number of ports. Port numbers 5 to 8 apply to the MDA in the right slot regardless of the actual physical number of ports.

For example, a Passport 8672ATM Module in the third slot of the Passport 8600 series chassis with an OC-12c/STM-4 MDA in the left slot and an OC-3c/STM-1 MDA in the right slot has the following port numbers for management and configuration:

- 3/1: OC-12c
- 3/5: OC-3c/STM-1, left port
- 3/6: OC-3c/STM-1, port second from left
- 3/7: OC-3c/STM-1, port second from right
- 3/8: OC-3c/STM-1, right port

As another example of port numbering, a Passport 8672ATM Module in the second slot of the chassis with two OC-12c/STM-4 MDAs installed has the following port numbers:

- 2/1: OC-12c/STM-4, left
- 2/5: OC-12c/STM-4, right

A Passport 8672ATM Module with two OC-3c/STM-1 MDAs installed has ports numbered consecutively 1 through 8, from left to right.

Device Manager

Passport Device Manager is an SNMP-based graphical user interface tool designed to manage single devices. In order to use Device Manager, you must have network connectivity to a management station running Device Manager on one of the supported platforms.

For detailed information on all aspects of installing and running Device Manager, refer to:

- *Getting Started with the Passport 8000 Series Management Software*
- *Reference for the Passport 8000 Series Management Software Routing Operations*
- *Reference for the Passport 8000 Series Management Software Switching Operations*

The following sections describe the Device Manager features that are specific to the Passport 8672ATM Module:

- "Installing Device Manager," next
- "Configuring ATM using Device Manager" on page 51
- "Displaying statistics using Device Manager" on page 71
- "Testing using Device Manager" on page 71

Device Manager access and passwords

For a complete discussion of Passport access levels and passwords, refer to *Reference for the Passport 8000 Series Management Software Switching Operations.*

Installing Device Manager

To install Device Manager:

1 Download the Device Manager software from the CD.

2 Double-click the icon and follow the instructions on the screen.

When you launch Device Manager, a graphical image of the Passport 8600 chassis with the Passport 8672ATM Module installed is displayed (Figure 11).

Figure 11   Passport 8000 series chassis with Passport 8672ATM Module
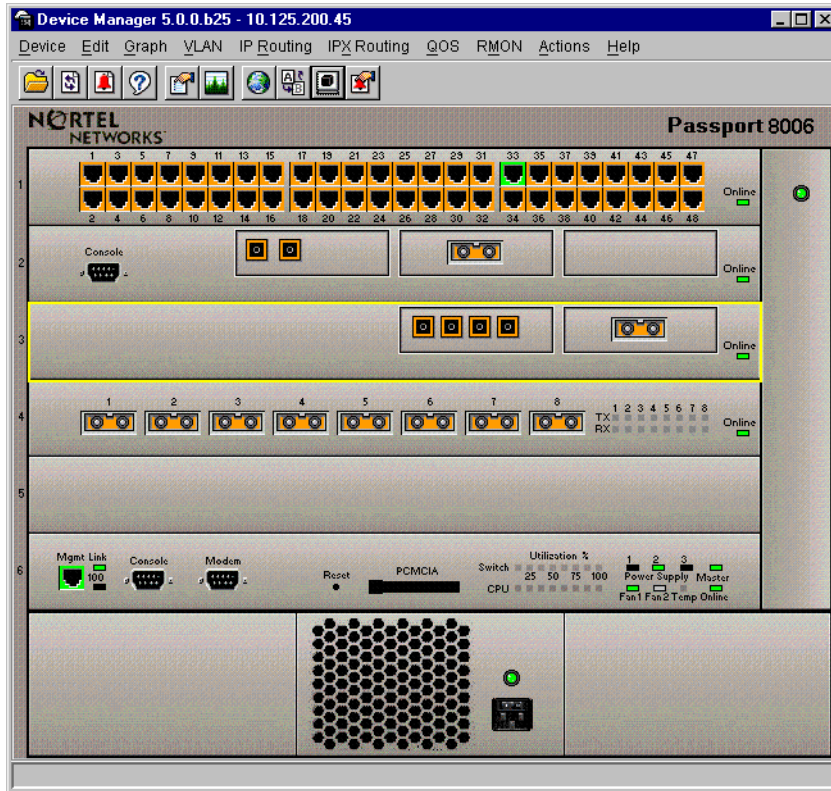
The ports on the graphical image are color-coded to provide at-a-glance port status. Table 3 shows the status assigned to each color.

Table 3   Device Manager port color codes

Field	Description
Green	Port is operating.
Red	Port has been manually disabled.
Orange	Port has no link.
Light blue	Port is in standby mode.
Dark blue	Port is being tested.
Gray	Port is unmanageable.

Additionally, many Device Manager windows and dialog boxes contain buttons. Table 4 describes the function of these buttons.

Table 4   Device Manager buttons

Field	Description
Apply	Applies the changes you entered to fields in a window or dialog box.
Refresh	Refreshes the information in the window. Each time you click Refresh, new information is polled form the switch and displays.
Close	Closes the window or dialog box and disregards any changes you made to fields.
Help	Does not function with the Passport 8672ATM Module.
Insert	Inserts or creates a new group, such as traps.
Resize Columns	Resizes column on the screen.

> **Note:** You must always click Apply at the bottom of the tab to implement any changes you make.

Configuring ATM using Device Manager

Use Device Manager tabs and dialog boxes described in the following sections to configure and manage the Passport 8672ATM Module.

To change the default settings on the Passport 8672ATM Module or to perform any configuration tasks in Device Manager, select the port you want to configure and open the Interface tab.

➔ To open the Interface tab, do one of the following:

- Right-click on the port. A shortcut menu opens. Choose Edit.
- Double-click on the port.

The Port dialog box opens with the Interface tab displayed (Figure 12).

Figure 12 Interface tab

Table 5 describes the items in the Interface tab.

Table 5 Interface tab items

Item	Description
Index	Unique value assigned to each interface. The value ranges between 16 and 255.
Name	Displays the name of this port. To assign or change a name to the port, highlight the field and enter alphanumeric characters.
Descr	Displays the port type of this interface, which may be: • OC-3c MMF or SMF • OC-12c MMF or SMF The card and port numbers are also shown.
Type	Displays the media type of this interface, which may be: • rcOc3cAtmSM • rcOc3cAtmMM • rcOc12cAtmSM • rcOc12cAtmMM
PhysAddress	MAC address assigned to a particular interface.
VendorDescr	Vendor description.
AdminStatus	Sets the port to either of the following states: • up • down When a managed system initializes, all interfaces start with AdminStatus in the down state. As a result of either management or configuration action, the AdminStatus is changed to the up state (or remains in the down state).
OperStatus	Displays the current operational state of the interface, either: • up • down If AdminStatus is down, then OperStatus should be down. If AdminStatus is changed to up, then OperStatus should change to up if the interface is ready to transmit and receive network traffic. It should remain in the down state if and only if there is a fault that prevents it from going to the up state.
LastChange	Displays the value of sysUpTime at the time the interface entered its current operational state. If the current state was entered prior to the last reinitialization of the local network management subsystem, the value is zero.
OperSpeed	Displays the current operating speed of the ATM port. For OC-3c, the operating speed is 155.52 Mb/s; for OC-12c, it is 622.08 Mb/s.

Table 5 Interface tab items (continued)

Item	Description
Action	Sets one of the following port-related actions: • none • flushMacFdb—flush MAC forwarding table for port • flushArp—flush ARP table for port • flushIp—flush IP route table for port • flushAll—flush all tables for port • triggerRipUpdate—manually update the RIP table
Result	Displays result from the last system action.

From the Interface tab, select other ATM-specific tabs to configure the port or change current or default configurations.

Resetting the module

To reset the module:

1 Highlight the module.

2 Choose Edit > Card.

The Card dialog box opens with the Card tab displayed (Figure 13).

Figure 13   Card tab
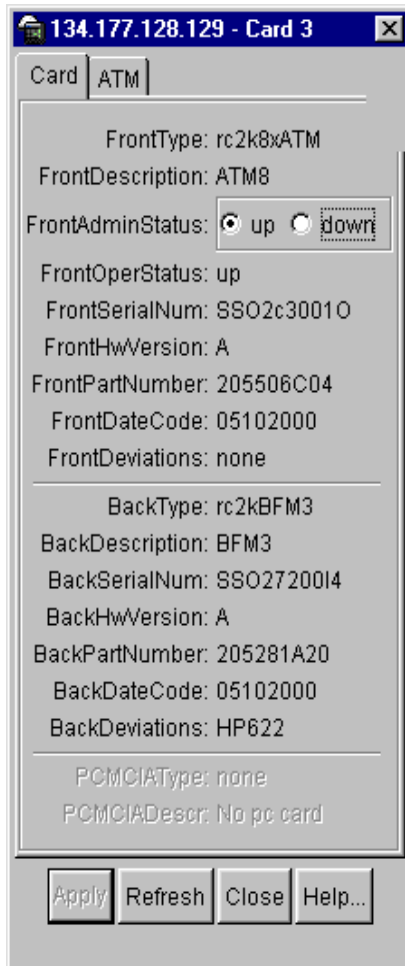
Table 6 describes the fields in the Card tab.

Table 6 Card tab fields

Field	Description
FrontType	Card type.
FrontDescription	ATM.
FrontAdminStatus	Administrative status of the card.
FrontOperStatus	Operational status of the card.
FrontSerialNum	Serial number of card.
FrontHWVersion	Hardware version.
FrontPartNumer	Part number.
FrontDateCode	Date code.
FrontDeviations	Deviations.
BackType	Card back type.
BackDescription	Description.
BackSerialNum	Serial Number.
BackHWVersion	Hardware version.
BackPartNumer	Part number.
BackDateCode	Date code.
BackDeviations	Deviations.

3 Click the ATM tab.

The ATM tab opens (Figure 14).

Figure 14 ATM tab
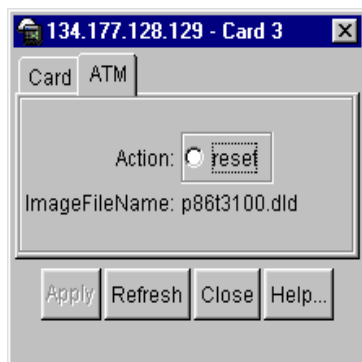
Table 7 describes the fields in the ATM tab.

Table 7 ATM tab fields

Field	Description
Action: reset	Resets the card.
ImageFileName	Name of the image file which downloads at initialization.

4 Click reset.

5 Click Apply.

Viewing MDA information

To view information on the MDA you are using,

1 Highlight the MDA.

2 Choose Edit > Mda.

The MDA dialog box opens (Figure 15).

Figure 15　MDA dialog box
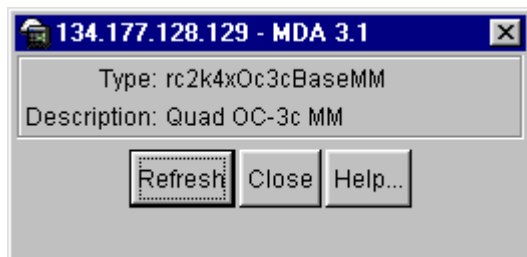
Table 8 describes the fields in the MDA dialog box.

Table 8　MDA dialog box fields

Field	Description
Type	Media type: • rc<XXXX>Oc3BaseSM. • rc<XXXX>Oc3BaseMM. • rc<XXXX>Oc12BaseSM. • rc<XXXX>Oc12BaseMM.
Description	MDA type: • Quad OC-3c SM — quad port OC-3c single-mode fiber. • Quad OC-3c MM — quad port OC-3c multimode fiber. • OC-12c SM — single port OC-12c single-mode fiber. • OC-12c MM — single port OC-12c multimode fiber.

Enabling or disabling a port

You can enable or disable a port by two methods. To enable or disable a port through the Device Manager menu bar:

1　On the device view, highlight a port.

2　From the Device Manager menu bar, choose Edit > Port.

The Port dialog box opens with the Interface tab displayed (Figure 12 on page 52).

3　In the AdminStatus area, click up to enable the port, or click down to disable the port.

4   Click Apply.

To enable or disable a port using a shortcut menu:

1   Right-click on the port.

A shortcut menu opens.

2   Choose Enable or Disable.

Editing port parameters

To view or change the general parameters of the port:

1   On the device view, highlight a port.

2   Choose Edit > Port.

The Port dialog box opens with the Interface tab displayed (Figure 12 on page 52).

Editing ATM and framing parameters

To view or change the ATM and framing parameters of the port:

1   On the device view, highlight a port.

2   Choose Edit > Port.

The Port dialog box opens with the Interface tab displayed (Figure 12 on page 52).

3   Click the ATM tab.

The ATM tab opens (Figure 16).

Figure 16 ATM tab
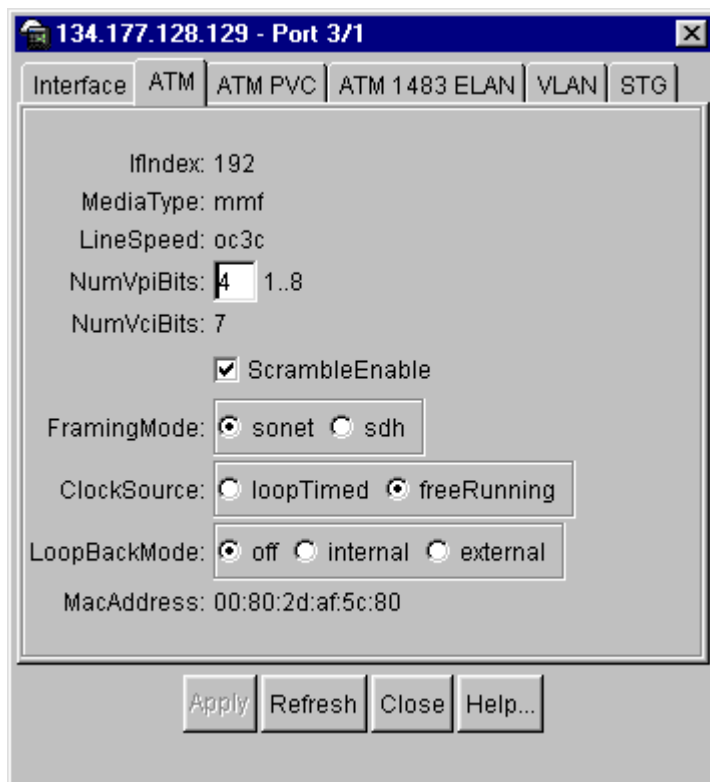
Table 9 describes the items in the ATM tab.

Table 9 ATM tab items

Item	Description
ifIndex	Interface Index.
MediaType	mmf (multimode fiber) or smf (single-mode fiber)
LineSpeed	For OC-3c, the operating speed is 155.52 Mb/s; for OC-12c, it is 622.08 Mb/s.
NumVpiBits	For OC-3c, 11 bits split between NumVpiBits and NumVciBits. NumVpiBits cannot exceed 6 bits for OC-3c.
	For OC-12c, 13 bits split between NumVpiBits and NumVciBits. NumVpiBits cannot exceed 8 bits for OC-12c.
NumVciBits	This field is read only. It takes remaining bits from NumVpiBits. For example, if NumVpiBits is 3 for OC-3c, then NumVciBits is 8.

Table 9 ATM tab items (continued)

Item	Description
ScrambleEnable	Sets the port to scramble the data by clicking the box.
FramingMode	Sets the framing for the port to: • sonet, which means the Synchronous Optical Network format, the standard format in North America. • sdh, which means the Synchronous Digital Hierarchy clock format, the standard format in Europe.
ClockSource	Sets the clock source for the port to: • loopTimed, which means clocking is derived from the SONET line**.** • freeRunning, which means clocking is derived from the on-board clock. Note: If you have two connected Passport 8672ATM Modules, you must set both to freeRunning or one to freeRunning and one to loopTimed; do not set both to loopTimed.
LoopBackMode	Sets the loopback mode to: • off • internal • external
MacAddress	MAC address assigned to a particular interface.

Editing circuit parameters

To view and configure ATM PVC parameters:

1 On the device view, highlight a port.

2 Choose Edit > Port.

The Port dialog box opens with the Interface tab displayed (Figure 12 on page 52).

3 Click the ATM PVC tab.

The ATM PVC tab opens (Figure 17).

Figure 17 ATM PVC tab
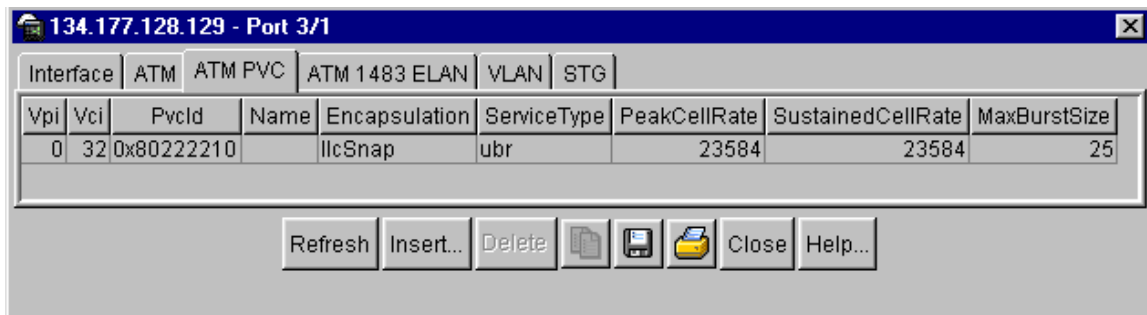
Table 10 describes the fields in the ATM PVC tab.

Table 10 ATM PVC tab fields

Item	Description
Vpi	Virtual path identifier**.**
Vci	Virtual circuit identifier.
PvcId	Internal index ID of the PVC.
Name	Emulated LAN name.
Encapsulation	Encapsulation type: null or llcSnap.
ServiceType	Unspecified bit rate (ubr) or variable bit rate (vbr).
PeakCellRate	Peak cell rate, in cells/second, is the maximum cell rate. Note: IP multicast traffic between a Passport module and other devices may not perform as well as expected unless the peak cell rate and the sustained cell rate values are updated to their maximum values; only applicable if the Service Type is vbr.
SustainedCellRate	Sustainable cell rate is an upper bound on the cell rate that is long relative to that of the PCR; only applicable if the Service Type is vbr.
MaxBurstSize	Maximum burst size determined by the signaling method; It is coded as a number of cells that can be transmitted at peak rate and still conform to the overall algorithm; only applicable if the Service Type is vbr.

4 Click Insert.

The Insert ATM PVC dialog box opens (Figure 18).

Figure 18   Insert ATM PVC dialog box

Table 11 describes the fields in the Insert ATM PVC dialog box.

Table 11   Insert ATM PVC dialog box fields

Item	Description
Vpi	Numeric value, within the range 0...255.
Vci	Numeric value, within the range 0...65535 **Note:** For <vpi.vci>, 0.0 is not supported.
Name	Alphanumeric characters to assign a name to the PVC.
Encapsulation	Encapsulation type: null or llcSnap.
ServiceType	Unspecified bit rate (ubr) or variable bit rate (vbr).
PeakCellRate	Numeric value, within the range 86...733490; only applicable if the Service Type is vbr.
SustainedCellRate	Numeric value, within the range 86...733490; only applicable if the Service Type is vbr.
MaxBurstSize	Numeric value, within the range 2...255; only applicable if the Service Type is vbr.

5   In the Vpi field, type the VPI-bit size (an integer between 0 and 255).

6 In the Vci field, type the VCI-bit size (an integer between 0 and 65, 535).

> → **Note:** For <vpi.vci>, 0.0 is not supported.

7 In the Name field, type the name of the ATM PVC.

8 In the Encapsulation field, select the encapsulation method (null or IIcSnap).

9 In the Service Type field, select the service type (ubr or vbr).

10 If you select vbr in the Service Type field:

    a In the PeakCellRate field, enter the PCR (an integer between 86 and 733490).

    b In the SustainedCellRate field, enter the SCR (an integer between 86 and 733490).

    c In the MaxBurstSize, type the maximum burst size (an integer between 2 and 255).

11 Click Insert.

The Insert ATM PVC dialog box closes.

12 Click Close.

Deleting a PVC

To delete a PVC:

1 On the device view, highlight a port.

2 Choose Edit > Port.

The Port dialog box opens with the Interface tab displayed (Figure 12 on page 52).

3 Click the ATM PVC tab.

4 The ATM PVC tab opens.

5 Click a PvcId entry in the table for the PVC you want to delete.

Figure 19 shows a highlighted PvcId entry.

Figure 19 ATM PVC tab with PVC selected

Port	Vpi	Vci	PvcId	Name	Encapsulation	ServiceType	PeakCellRate	SustainedCellRate	MaxBurstSize
3/1	0	100	0x8022b710		llcSnap	ubr	23584	23584	25
3/5	0	100	0x8022b758		llcSnap	ubr	23584	23584	25
3/6	0	33	0x8022b7a0		llcSnap	ubr	23584	23584	25
3/7	0	100	0x8022b7e8		llcSnap	ubr	23584	23584	25
3/7	0	101	0x8022b830		llcSnap	ubr	23584	23584	25
3/8	0	100	0x8022b878		llcSnap	ubr	23584	23584	25

10.10.41.239 – ATM

ATM PVC | ATM 1483 ELAN

Refresh Insert... Delete Close Help...

6 Click Delete.

The PVC is deleted.

Configuring ATM 1483 ELAN parameters

To view and configure ATM 1483 ELAN parameters for the port:

1 On the device view, highlight a port.

2 Choose Edit > Port.

The Port dialog box opens with the Interface tab displayed (Figure 12 on page 52).

3 Click the ATM 1483 ELAN tab.

The ATM 1483 ELAN tab opens (Figure 20 and Figure 21).

Figure 20 ATM 1483 ELAN tab (left section)

Figure 21 ATM 1483 ELAN tab (right section)

Table 12 describes the fields in the ATM 1483 ELAN tab.

Table 12 ATM 1483 ELAN tab fields

Field	Description
VlanId	VLAN to which the ELAN belongs.
ElanId	Internal ID of the ELAN.
NumPvcIds	Number of PVCs pairs used in the ELAN.
PvcIds	List of PVC IDs, minimum of 1 required.
ConnectType	Type of connection: bridged, IP or IPX.
VlanMacAddress	MAC address assigned to this VLAN: used in IP and IPX routed circuits when there is no appropriate destination MAC to use.

Table 12   ATM 1483 ELAN tab fields (continued)

Field	Description
DummyMacAddress	Dummy MAC address assigned to this VLAN: used in IP and IPX routed circuits when there is no appropriate source MAC to use.
LocalIpAddress	Local IP address for connection type IP.
RemoteIpAddress	Remote IP address for connection type IP.
InArpSendEnable	Enables ARP sending on the ELAN for connection type IP.
InArpSendInterval	Interval of ARP sending for connection type IP.
IpxVlanEncapMethod	One of the following: • llc • snap • ether-ii • raw
IpxNetworkNum	Network number; IPX only.
StgId	Spanning tree group ID. Only for bridge connection type.
rcStgTaggedBpduVlanId	VLAN ID used for tagging BPDUs.

4   Click Insert.

The Insert ATM 1483 ELAN dialog box opens .

Figure 22   Insert ATM 1483 ELAN dialog box
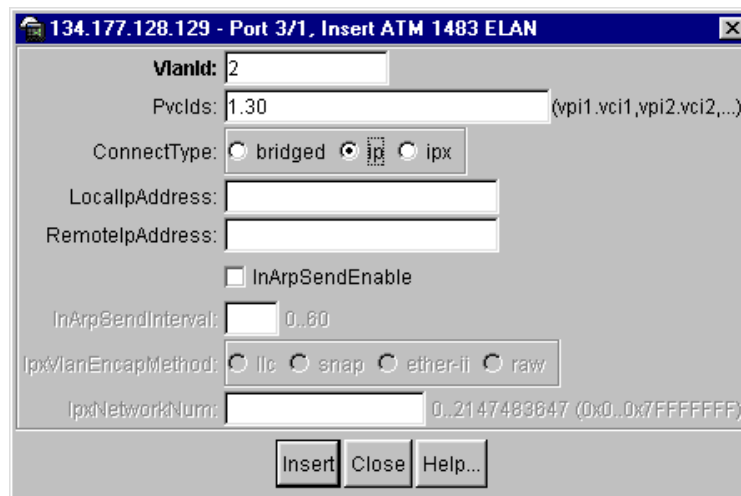
Table 13 describes the items in the Insert ATM 1483 ELAN dialog box.

Table 13   Insert ATM 1483 ELAN dialog box items

Item	Description
VlanId	VLAN ID.
PvcIds	Value for Pvc IDs.
ConnectType	Types of connection: bridged, IP or IPX.
LocalIpAddress	IP address of the device.
RemoteIpAddress	IP address of the device to which you are connecting.
InArpSendEnable	Enables ARP sending on the ELAN for connection type IP.
InArpSendInterval	Interval of ARP sending for connection type IP.
IpxVlanEncapMethod	IPX encapsulation protocol: llc, snap, ether-ii, or raw.
IpxNetworkNum	Network number; numeric value, within the range 0...2147483647.

5   In the VlanId field, type the VLAN ID.

6   In the PvcIds field, type the PVC ID.

> ➡   **Note:** For <vpi.vci>, 0.0 is not supported.

7   In the ConnectType field, select the type of routing protocol: bridged, ip, or ipx.

8   If bridged is selected in the ConnectType field, click Insert.

9   If Ip is selected in the ConnectType field, complete the following fields:

   a   In the LocalIpAddress field, type the IP address of the device.

   b   In the RemoteIpAddress field, type the IP address of the device that you are connecting to in the 1483 ELAN.

   c   Select the InArpSendEnable option to enable Arp packets.

   d   In the InArpSendInterval field, type the time interval between 0 and 60 seconds.

   e   Click Insert.

Figure 23 shows the relevant fields for IP routing.

Figure 23   Insert ATM 1483 ELAN dialog box for IP routing

10 If Ipx is selected in the ConnectType field, complete the following fields:

a   In the IpxVlanEncapMethod, select the encapsulation method (llc, snap, ether-ii, or raw).

b   In the IpxNetworkNum field, enter the network number (an integer between 0 and 2147483647.

c   Click Insert.

Figure 24 shows the relevant fields for IPX routing.

Figure 24 Insert ATM 1483 ELAN dialog box for IPX routing
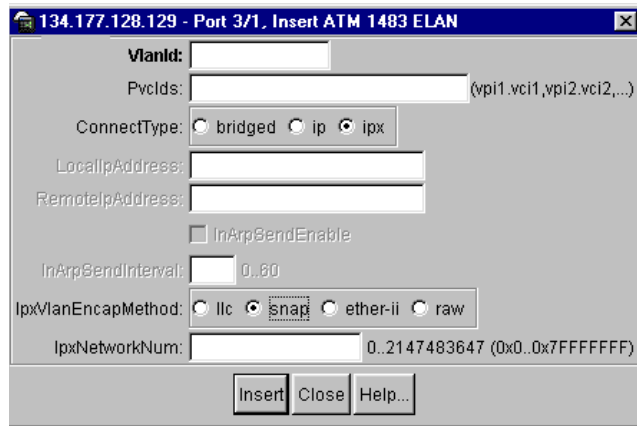
Deleting an ATM 1483 ELAN

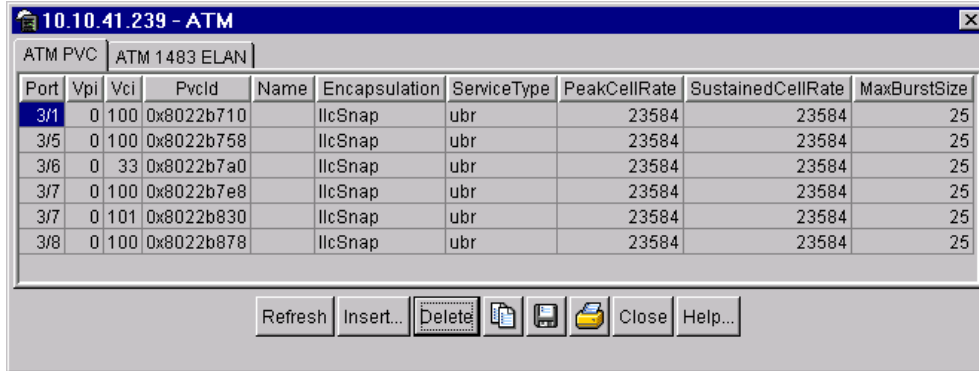To delete an ATM 1483 ELAN:

1 On the device view, highlight a port.

2 Choose Edit > Port.

The Port dialog box opens with the Interface tab displayed (Figure 12 on page 52).

3 Click the ATM 1483 ELAN tab.

4 The ATM 1483 ELAN tab opens.

5 Select the ATM 1483 ELAN to be deleted by clicking the ElanId entry in the table.

Figure 25 shows a highlighted ElanId entry.

Figure 25 ATM 1483 ELAN tab with ElanId selected

Port	VlanId	ElanId	NumPvcIds	PvcIds	ConnectType	VlanMacAddress	DummyMacAddress	LocalIpAddress	Remote
3/1	10	0x8038f390	1	0.100	bridged	00:00:00:00:00:00	00:00:00:00:00:00	0.0.0.0	0.0.0.0
3/5	17	0x8038f3f0	1	0.100	ipx	00:e0:7b:7b:52:03	00:e0:ff:7b:8a:3c	0.0.0.0	0.0.0.0
3/6	4	0x8038f450	1	0.33	bridged	00:00:00:00:00:00	00:00:00:00:00:00	0.0.0.0	0.0.0.0
3/7	2	0x8038f4b0	2	0.100,0.101	bridged	00:00:00:00:00:00	00:00:00:00:00:00	0.0.0.0	0.0.0.0
3/8	7	0x8038f510	1	0.100	ip	00:e0:7b:7b:52:01	00:e0:ff:7b:8a:3d	10.10.80.239	10.10.8

Refresh Insert... Delete Close Help...

5 row(s)

6 Click Delete.

The ATM 1483 ELAN is deleted.

Displaying statistics using Device Manager

Statistics are not supported in Device Manager in this release. See the "show ports stats atmport command" on page 89 for information on statistics in the CLI.

Testing using Device Manager

Testing is not supported in this release.

Chapter 5
Managing the Passport 8672ATM Module with the CLI

You can manage your Passport 8672ATM Module through the command line interface (CLI). You can also use the embedded Web-based management feature to monitor the 8672ATM Module.

This chapter contains information on these topics:

- "Command line interface," next
- "show ports stats atm felinecurrent" on page 91
- "Web management" on page 106

Refer to Chapter 4, "Managing the Passport 8672ATM Module with Device Manager" for information about port numbering and managing your Passport 8672ATM Module through Device Manager.

Command line interface

You can use the command line interface (CLI) to perform most module management tasks. For more information about the CLI, refer to:

- *Getting Started with the Passport 8000 Series Management Software*
- *Reference for the Passport 8000 Series Command Line Interface Switching Operations*
- *Reference for the Passport 8000 Series Command Line Interface Routing Operations*

This section contains the following information:

- "Configuration commands," next
- "Show commands" on page 82

Configuration commands

This section describes the CLI configuration commands available with the Passport 8672ATM Module. There are three types of configuration commands:

- "Module commands," next
- "1483 ELAN statistics" on page 75
- "Port commands" on page 77

> **Note:** If you replace one card with another type of card, Nortel Networks recommends that you go to the root level of the CLI directory before using any CLI commands.

Module commands

The module commands allow you to:

- Reset the module
- View ELAN statistics
- Display the image filename for the Passport 8672ATM Module.

The syntax is:

```
config atmcard <atmslot number>
```

The required variable `<atmslot number>` is the slot number of the module in the Passport 8600 chassis. Table 14 describes the parameters and variables for the `config atmcard` command.

Table 14   config atmcard command parameters and variables

Parameters and variables	Description
card-reset	Resets the card.
elan-stats <enable|disable>	Enables collection of ELAN statistics.
info	Displays the image filename for the module.

1483 ELAN statistics

The 1483 ELAN statistics commands allow you to collect ELAN statistics for an ATM port. The commands are:

*   config atmcard <*slot_number*> elan-stats <enable|disable>
*   clear atm elan-stats <*vlan_id*>
*   show atm elan-stats <*vlan_id*>

config atmcard elan-stats

The collection of ELAN statistics is disabled by default to avoid slowing data forwarding performance. ELAN statistics should be disabled after collection.

Enabling or disabling the collection of ELAN statistics does not clear the ELAN statistics counters. This allows the ELAN statistics to be reviewed after the feature is disabled.

clear atm elan-stats <vlan id>

This command allows you to clear statistics for a particular VLAN ID.

The syntax is:

clear atm elan-stats <*vlan_id*>

show atm elan-stats <vlan id>

Use this command to display the ELAN statistics for a particular VLAN ID. If the collection of ELAN statistics is disabled, a message is printed before the ELAN statistics.

Figure 27 shows sample output from the show **atm elan-stats** *<vlan_id>* command.

Figure 26 show atm elan-stats command output

```
Passport-8610:5# show atm elan-stats 7
======================================================================
                          ATM ELAN STATISTICS
======================================================================
InOctets:          3208404820   InErrors:          0   InDiscards:          0
OutOctets:          3208281916  OutErrors:          0   OutDiscards:          0
 InUcastPkts:      130202   InMcastPkts:       395   InBCastPkts:    59134772
OutUcastPkts:      129406  OutMcastPkts:       391   OutBCastPkts:   59133296
```

Table 15 describes the information fields for the show atm elan-stats command.

Table 15 Information fields for the show atm elan-stats command

Field	Description
InOctets	Octets received from the ATM interface. This includes the "InDiscards" PDUs.
OutOctets	Octets transmitted out of the ATM interface. **NOTE**: For a Bridge ELAN Type with multiple PVCs, there will be multiple packets transmitted for a multicast packet, or for a unicast packet that is not in the CAM. Thus, the OutOctets may not correlate to the OutUcastPkts + OutMcastPkts + OutBcastPkts.
InErrors	AAL5 CPCS PDUs received with errors from the ATM interface. These errors include CRC-32 errors, SAR time-out errors, and oversized SDU errors.
OutErrors	Number of AAL5 CPCS PDUs that could not be transmitted due to error.

Table 15   Information fields for the show atm elan-stats command (continued)

Field	Description
InDiscards	Number of received AAL5 CPCS PDUs discarded.
OutDiscards	Ethernet packets discarded.
InUcastPkts	Number of unicast packets received on the ELAN.
OutUcastPkts	Number of unicast packets transmitted on the ELAN.
InMcastPkts	Number of Multicast packets received on the ELAN.
OutMcastPkts	Number of Multicast packets transmitted on the ELAN.
InBcastPkts	Number of broadcast packets received on the ELAN.
OutBcastPkts	Number of broadcast packets transmitted on the ELAN.

clear atm elan-stats

Use this command to clear the ELAN statistics for a particular VLAN ID. The syntax is:

```
clear atm elan-stats <vlan_id>
```

Port commands

The port commands allow you to perform general configuration on the Passport 8672ATM Module. The port config commands are:

- `config atm <ports>`
- `config atm <ports> pvc`
- `config atm <ports> pvc 1483 {bridged|ip|ipx}`
- `config atm <ports> info`

config atm command

Table 16 describes the parameters and variables for the `config atm <ports>` command.

Table 16   config atm command parameters and variables

Parameters and variables	Description
action <action choice>	Flushes a MAC, ARP, or IP table or triggers a RIP update. Choices are: • none • flushMacFdb • flushArp • flushIp • flushAll • triggerRipUpdate
number-vpi-bits <number-vpi-bits>	• Sets the number of bits used to represent VPI. Enter integer from 0 to 8. • For OC-3c, 11 bits split between NumVpiBits and NumVciBits. NumVpiBits cannot exceed 6 bits for OC-3c. • For OC-12c, 13 bits split between NumVpiBits and NumVciBits. NumVpiBits cannot exceed 8 bits for OC-12c.
scrambling <enable	disable>	Enables or disables scrambling.
framing-mode <sonet	sdh>	Sets the framing to: • sonet, which means the Synchronous Optical Network format; standard format used in North America. • sdh, which means the Synchronous Digital Hierarchy clock format; standard format used in Europe.
clock-source <loop-timed	free-running>	Sets the transmit clock source to: • loop-timed, which means clocking is derived from line. • free-running, which means clocking is derived from on-board clock. Note that if you have two connected Passport 8672ATM Modules, you must set both to free-running or one to loop-timed and one to free-running; do not set both to loop-timed.
loop-back-mode <off	internal	remote>	Sets the loopback mode to: • off • internal • external
state <enable	disable>	Sets the state of the port to enabled or disabled.

Table 16   config atm command parameters and variables (continued)

Parameters and variables	Description
info	Shows the last saved port settings and the next-level CLI commands. Note that this does not show the current settings, but the last saved settings.
perform-tagging <enable | disable>	Enables or disables tagging.

config atm pvc command

Table 17 describes the parameters and variables for the `config atm pvc` command.

Table 17   config atm pvc command parameters and variables

Parameters and variables	Description
create < vpi.vci> [name <value>] [enc <value>] [serv <value>] [pcr <value>] [scr <value>] [mbs <value>]	Creates a PVC. The required parameters are: • vpi is the circuit VPI. Enter a numeric value, within the range 0...255. • vci is the circuit VCI. Enter a numeric value, within the range 0...65535. Note: For <vpi.vci>, 0.0 is not supported. The optional parameters are: • name is the display string. Enter up to 256 alphanumeric characters to name PVC. • enc is the 1483 encapsulation method, either null or llc-snap. • serv is the bit rate, either ubr or vbr. • pcr, with VBR only, is the peak cell rate. Enter an integer from 86 to 733490. • scr, with VBR only, is the sustained cell rate. Enter an integer from 86 to 733490. • mbs, with VBR only, is the maximum burst size. Enter an integer from 2 to 255. Note that no VLANs or ELANs are bound to this PVC until you add VLAN membership using the config atm <ports> pvc 1483 commands.
delete <vpi.vci>	Deletes the specified PVC. Note that this command will fail if the PVC is still being used by RFC 1483 traffic.
info [<ports>]	Displays PVC information.

config atm pvc 1483 command

Use the `config atm pvc 1483` commands to configure 1483 parameters on the Passport 8672ATM Module. The syntax is:

- `config atm <ports> pvc 1483 bridged`
- `config atm <ports> pvc 1483 ip`
- `config atm <ports> pvc 1483 ipx`

Table 18 describes the parameters and variables for the `config atm <ports> pvc 1483` command.

Table 18   config atm pvc 1483 bridged command parameters and variables

Parameters and variables	Description
add <vid> <vpi.vci> [,<vpi.vci>]...	Adds a number of PVCs to the specified 1483 ELAN. The required parameters are: • vid means VLAN ID number. • vpi.vci means circuit VPI number and the circuit VCI numbers, respectively; they are separated by a period. Note: This command fails if the specified VIDs or VPI/VCI pairs belong to another ELAN or already exist on this ELAN.
create <vid> <vpi.vci> [,<vpi.vci>]...	Creates a 1483 ELAN consisting of the specified PVCs. The required parameters are: • vid means VLAN ID number. • vpi.vci means circuit VPI number and the circuit VCI numbers, respectively; they are separated by a period. Note: This command fails if the specified VIDs or VPI/VCI pairs belong to another ELAN or already exist on this ELAN.
delete <vid>	Deletes the specified ELAN.
remove <vid> <vpi.vci> [,<vpi.vci>]...	Removes a number of PVCs from the specified 1483 ELAN. The required parameters are: • vid means VLAN ID number. • vpi.vci means circuit VPI number and the circuit VCI numbers, respectively; they are separated by a period. Note that this command fails if the PVCs are not present.
info	Displays information on 1483 ELANs.

Table 19 describes the parameters and variables for the `config atm pvc 1483 ip` command.

Table 19   config atm pvc 1483 ip command parameters and variables

Parameters and variables	Description
create <vid> <vpi.vci> <remoteip>	Creates a routed 1483 IP circuit on the specified VLAN to the specified remote router interface. The optional parameters are: • vid means VLAN ID number. • vpi.vci means circuit VPI number and the circuit VCI numbers, respectively; they are separated by a period. • remoteip is the IP address of the remote router interface. Note that the VLAN ID can exist *only* on this port.
delete <vid>	Deletes the routed 1483 IP circuit on the specified VLAN.
info	Displays information on routed 1483 IP circuits.

Table 20 describes the parameters and variables for the `config atm pvc 1483 ipx` command.

Table 20   config atm pvc 1483 ipx command parameters and variables

Parameters and variables	Description
create <vid> <vpi.vci> <ipx>	Creates a routed 1483 IPX circuit on the specified VLAN to the specified remote router interface. The optional parameters are: • vid means VLAN ID number. • vpi.vci means circuit VPI number and the circuit VCI numbers, respectively; they are separated by a period. • ipx is the IPX Network number of the remote router interface. If this number is not given, the first IPX Network number configured for the specified VLAN is used. Note that the VLAN ID must be previously configured for IPX on this port. No ARP functionality is available on this IPX segment.
delete <vid>	Deletes the routed 1483 IPX circuit on the specified VLAN.
info	Displays information on routed 1483 IPX circuits.

config atm info command

Figure 27 shows a sample of the output resulting from executing the `config atm info` command.

Figure 27 Sample output for the config atm info command

```
number-vpi-bits : 4
                  scrambling : Enable
                framing-mode : SONET
                clock-source : Free Running
              loop-back-mode : off
                       state : up
```

Show commands

This section discusses the CLI show commands available with the Passport 8672ATM Module. These commands allow you to view information about the module:

```
show ports info atm all [<ports>]
show ports info atm ports [<ports>]
show ports info atm pvc [<ports>]
show ports info atm 1483 [<ports>]
show ports stats atmport [<ports>]
show ports stats atm felinecurrent [<ports>]
show ports stats atm felineinterval <intervalid> [<ports>]
show ports stats atm fepathcurrent [<ports>]
show ports stats atm fepathinterval <intervalid> [<ports>]
show ports stats atm linecurrent [<ports>]
show ports stats atm lineinterval <intervalid> [<ports>]
show ports stats atm pathcurrent [<ports>]
show ports stats atm pathinterval <intervalid> [<ports>]
show ports stats atm sectioncurrent [<ports>]
show ports stats atm sectioninterval <intervalid> [<ports>]
show ports stats atm sonetmediumtbl [<ports>]
```

Refer to *Reference for the Passport 8000 Series Command Line Interface Switching Operations,* and *Reference for the Passport 8000 Series Command Line Interface Routing Operations* for a complete list of CLI show commands.

show ports info atm all command

This command displays information (Figure 28) about the configuration for the specified port or for all ports. The command uses the syntax:

```
show ports info atm all [<ports>]
```

Figure 28   show ports info atm all command output

```
Passport-8610:5/show/ports/info/atm# all
========================================================
                   ATM Port Configuration
========================================================
PORT    MDA         SCRAMBLE FRAMING MAX-BITS CLOCK  LOOPBACK ADMIN
NUM    DESCRIPTION   ENABLE   MODE   VPI VCI  SOURCE  MODE STATE STATUS
----------------------------------------------------------------------
3/1   OC-12c MM      enable   SONET   4   9    free    off      up up
3/5   Quad OC-3c MM enable   SONET   2   9    free    off      up up
3/6   Quad OC-3c MM enable   SONET   2   9    free    off      up down
3/7   Quad OC-3c MM enable   SONET   4   7    free    off      up down
======================================================================
                              ATM PVC
======================================================================
PORT    PVC              SERVICE
NUM    VPI.VCI   ENCAPS    TYPE
----------------------------------------------------------------------
3/1   0.100     llc-snap   UBR
3/1   3.200     llc-snap   UBR
3/6   0.33      llc-snap   UBR
3/6   3.90      llc-snap   UBR
======================================================================
                            1483 Bridged
======================================================================
PORT  VLAN    PVC
NUM    ID     LIST
----------------------------------------------------------------------
3/1   6       0.100
3/8   4       3.40,4.50
======================================================================
                             1483 IP
======================================================================
PORT  VLAN    PVC        VLAN          LOCAL           REMOTE
NUM    ID    VPI.VCI   MAC ADDRESS    IP ADDRESS      IP ADDRESS
----------------------------------------------------------------------
3/6 7      0.100     00:e0:7b:7b:52:01 10.10.80.239   10.10.80.230
======================================================================
                             1483 IPX
======================================================================
PORT  VLAN    PVC        VLAN          IPX NETWORK  IPX
NUM    ID    VPI.VCI   MAC ADDRESS       NUMBER     ENCAP
----------------------------------------------------------------------
3/5   17     0.100     00:e0:7b:7b:52:03 10-11Xethernet-ii
Passport-8610:5/show/ports/info/atm# all
```

Table 21 describes the information fields for the show ports info atm all command.

Table 21 Information fields for the show ports info atm all command

Field	Description
PORT NUM	Port number.
MDA DESCRIPTION	This field describes the MDA: • Quad OC-3c SM — quad port OC-3c single-mode fiber • Quad OC-3c MM — quad port OC-3c multimode fiber • OC-12c SM — single port OC-12c single-mode fiber • OC-12c MM — single port OC-12c multimode fiber
SCRAMBLE ENABLE	Parameter that enables/disables the scrambling option.
FRAMING MODE	Indicates the framing for the port, either: • sonet, which means the Synchronous Optical Network format, the standard format in North America. • sdh, which means the Synchronous Digital Hierarchy clock format, the standard format in Europe.
MAX-BITS VPI	For OC-3c, 11 bits split between NumVpiBits and NumVciBits. NumVpiBits cannot exceed 6 bits for OC-3c. For OC-12c, 13 bits split between NumVpiBits and NumVciBits. NumVpiBits cannot exceed 8 bits for OC-12c.
MAX-BITS VCI	This field is read only. It takes remaining bits from NumVpiBits. For example, if NumVpiBits is 3 for OC-3c, then NumVciBits is 8.
CLOCK SOURCE	Indicates whether the Clock Source is either: • line • internal
LOOPBACK MODE	Indicates the loopback mode:: • off • internal • external
ADMIN STATE	Indicates the Admin State of the port, either: • up • down
STATUS	Indicates the status of the port, either: • up • down
PVC VPI.VCI	Permanent virtual circuit and the associated vpi and vci numeric identifiers.

Table 21 Information fields for the show ports info atm all command (continued)

Field	Description
ENCAPS	Encapsulation methods: either null, or llc-snap.
SERVICE TYPE	Unspecified bit rate (ubr) or variable bit rate (vbr).
VLAN ID	VLAN name to which the ELAN belongs.
PVC LIST	List of permanent virtual circuits.
VLAN MAC ADDRESS	The MAC address assigned to this VLAN (used in IP and IPX routed circuits when there is no appropriate destination MAC to use).
LOCAL IP ADDRESS	The local Ip address for connection type IP.
REMOTE IP ADDRESS	The remote Ip address for connection type IP.
IPX NETWORK NUMBER	Network number.
IPX ENCAP	Encapsulation method: llc, snap, ether-ii or raw.

show ports info atm ports command

This command displays information (Figure 29) about the configuration of ATM ports. The command uses the syntax:

```
show ports info atm ports
```

Figure 29 show ports info atm ports command output

```
Passport-8610:5/show/ports/info/atm# ports
========================================================================
                        ATM Port Configuration
========================================================================
PORT    MDA        SCRAMBLE FRAMING MAX-BITS CLOCK  LOOPBACKADMIN STATUS
NUM    DESCRIPTION  ENABLE   MODE   VPI VCI  SOURCE  MODE STATE
------------------------------------------------------------------------
3/1    OC-12c MM     enable  SONET   4   9    free    off     up      up
3/5    Quad OC-3c MM enable  SONET   2   9    free    off     up      up
3/6    Quad OC-3c MM enable  SONET   2   9    free    off     up    down
3/7    Quad OC-3c MM enable  SONET   4   7    free    off     up      up
3/8    Quad OC-3c MM enable  SONET   4   7    free    off     up      up

Passport-8610:5/show/ports/info/atm#
```

Table 22 describes the information fields for the show ports info atm ports command.

Table 22 Information fields for the show ports info atm ports command

Field	Description
PORT NUM	Port number.
MDA DESCRIPTION	This field describes the MDA: • Quad OC-3c SM — dual port OC-3c single-mode fiber • Quad OC-3c MM — dual port OC-3c multimode fiber • OC-12c SM — single port OC-12c single-mode fiber • OC-12c MM — single port OC-12c multimode fiber
SCRAMBLE ENABLE	Parameter that enables/disables the scrambling option.
FRAMING MODE	Indicates the framing for the port, either: • sonet, which means the Synchronous Optical Network format, the standard format in North America. • sdh, which means the Synchronous Digital Hierarchy clock format, the standard format in Europe.
MAX-BITS VPI	For OC-3c, 11 bits split between NumVpiBits and NumVciBits. NumVpiBits cannot exceed 6 bits for OC-3c. For OC-12c, 13 bits split between NumVpiBits and NumVciBits. NumVpiBits cannot exceed 8 bits for OC-12c.
MAX-BITS VCI	This field is read only. It takes remaining bits from NumVpiBits. For example, if NumVpiBits is 3 for OC-3c, then NumVciBits is 8.
CLOCK SOURCE	Indicates whether the Clock Source is either: • line • internal
LOOPBACK MODE	Indicates the loopback mode: • off • internal • external
ADMIN STATE	Indicates the Admin State of the port, either: • up • down
STATUS	Indicates the status of the port, either: • up • down

show ports info atm pvc command

This command displays information (Figure 30) about the permanent virtual circuits (PVCs) for the specified port or for all ports. The command uses the syntax:

```
show ports info atm pvc [<ports>]
```

Figure 30 show ports info atm pvc command output

```
Passport-8610:5/show/ports/info/atm# pvc
=======================================================
                        ATM PVC
=======================================================
PORT    PVC                 SERVICE
NUM    VPI.VCI    ENCAPS    TYPE
-------------------------------------------------------
3/1    0.100      llc-snap  UBR
3/1    3.200      llc-snap  UBR
3/6    0.33       llc-snap  UBR
3/6    3.90       llc-snap  UBR
3/8    3.40       llc-snap  UBR
3/8    4.50       llc-snap  UBR
3/8    7.100      llc-snap  UBR

Passport-8610:5/show/ports/info/atm#
```

Table 23 describes the information fields for the show ports info atm pvc command.

Table 23 Information fields for the show ports info atm pvc command

Field	Description
PORT NUM	Port number.
PVC VPI.VCI	Permanent virtual circuit and the associated vpi and vci numeric identifiers.
ENCAPS	Encapsulation method: null or llc-snap.
SERVICE TYPE	Unspecified bit rate (ubr) or variable bit rate (vbr).

show ports info atm 1483 command

This command displays information (Figure 31) about 1483 circuits for the specified port or for all ports. The command uses the syntax:

```
show ports info atm 1483 [<ports>]
```

Figure 31   show ports info atm 1483 command output

```
Passport-8610:5# show ports info atm 1483 3/8
================================================================
                          1483 Bridged
================================================================
PORT   VLAN    PVC
NUM     ID     LIST
----------------------------------------------------------------


================================================================
                           1483 IP
================================================================
PORT   VLAN      PVC        VLAN           LOCAL    REMOTE
NUM     ID     VPI.VCI   MAC ADDRESS     IP ADDRESS IP ADDRESS
----------------------------------------------------------------
3/8    7       0.100     00:e0:7b:7b:52:01 10.10.80.239 10.10.80.2
================================================================
                           1483 IPX
================================================================
PORT   VLAN      PVC        VLAN           IPX NETWORK   IPX
NUM     ID     VPI.VCI   MAC ADDRESS         NUMBER     ENCAP
----------------------------------------------------------------
Passport-8610:5#
```

Table 24 describes the information fields for the show ports info atm 1483 command.

Table 24   Information fields for the show ports info atm 1483 command

Field	Description
PORT NUM	Port number.
VLAN ID	VLAN name to which the ELAN belongs.
PVC LIST	List of permanent virtual circuits.

Table 24   Information fields for the show ports info atm 1483
command (continued)

Field	Description
VLAN MAC ADDRESS	MAC address assigned to this VLAN: used in IP and IPX routed circuits when there is no appropriate destination MAC to use.
LOCAL IP ADDRESS	Local IP address for connection type IP.
REMOTE IP ADDRESS	Remote IP address for connection type IP.
IPX NETWORK NUMBER	Network number.
IPX ENCAP	Encapsulation method: llc, snap, ether-ii, or raw.

show ports stats atmport command

This command displays statistics for atm ports (Figure 32). The command uses
the syntax:

```
show ports stats atmport [<port num>]
```

Figure 32 show ports stats atmport [<port num>] command output

```
Passport-8606:6/show/ports/stats# atmport
=========================================================================
                        ATM Port Statistics I
=========================================================================
PORT       IN         OUT        IN CORR    IN UNCORR
NUM        CELLS      CELLS      HCS ERR    HCS ERR
-------------------------------------------------------------------------
3/1        0          6744908    0              0
3/2        0          6744901    0              0
3/3        0          6744893    0              0
3/4        0          6744888    0              0
3/5        0          35314189   0              0
=========================================================================
                                ATM Port Statistics II
=========================================================================
PORT    IN      OUT     IN DROP    OUT DROP   UNKNOWN VPI/VCI     IDLE
NUM     PKTS    PKTS    PKTS       PKTS       CELLS              CELLS
-------------------------------------------------------------------------
3/1     0       0       0          0          0               6746913
3/2     0       0       0          0          0               6746912
3/3     0       0       0          0          0               6746913
3/4     0       0       0          0          0               8096349
3/5     0       0       0          0          0               42386582

Passport-8606:6/show/ports/stats#
```

Table 25 describes the information fields for the show ports stats atmport command.

Table 25 Information fields for the show ports stats atmport command

Field	Description
PORT NUM	Port number.
IN CELLS	Received cells.
OUT CELLS	Transmitted cells.
IN CORR HCS ERR	Number of inbound packets that contained errors preventing them from being deliverable to a higher-layer protocol.

Table 25 Information fields for the show ports stats atmport
command (continued)

Field	Description
IN UNCORR HCS ERR	Number of packets received using the interface which were discarded because of an unknown or unsupported protocol.
IN PKTS	Number of packets received.
OUT PKTS	Number of packets transmitted.
IN DROP PKTS	Number of in-bound packets dropped.
OUT DROP PKTS	Number of out-bound packets dropped.
UNKNOWN VPI/VCI CELLS	Number of packets for which the vpi/vci values are unknown.
IDLE CELLS	Cells that are inactive.

show ports stats atm felinecurrent

This command displays current statistics on the far end line, which is at the
receiving end. The command uses the syntax:

```
show ports stats atm felinecurrent[<ports>]
```

Figure 33 shows sample output for the show ports stats atm
felinecurrent command.

Figure 33 show ports stats atm felinecurrent command output

```
Passport-8610:5/show/ports/stats/atm# felinecurrent
======================================================================
                    ATM Far End Line Current Stats
======================================================================
PORT      ERRORED SECONDS    SEVERELY ERRORED    CODE VIOLATION UNAVAILABLE
NUM       COUNT (ES)         COUNT (SES)         COUNT (CV-L) SECONDS(UAS)
----------------------------------------------------------------------
3/1           0                  0                   0                0
3/5           0                  0                   0                0
9/1           0                  0                   0                0
9/2           0                  0                   0                0
9/3           0                  0                   0                0
9/4           0                  0                   0                0
9/5           0                  0                   0                0
9/6           0                  0                   0                0
9/7           0                  0                   0                0
9/8           0                  0                   0                0

Passport-8610:5/show/ports/stats/atm# felinecurrent
```

Table 26 describes the information fields for the show ports stats atm
felinecurrent command.

Table 26 Information fields for the show ports stats atm felinecurrent command

Field	Description
PORT NUM	Port number.
ERRORED SECONDS COUNT (ES)	Errored Second (ES) is a second with one or more Coding Violations (CV) or one or more incoming defects (for example, SEF, LOS, AIS, LOP).
SEVERELY ERRORED COUNT (SES)	Severely Errored Second (SES) is a second with x or more CVs, or one or more incoming defects.
CODE VIOLATION COUNT (CV-L)	Coding Violations (CV) are Bit Interleaved Parity (BIP) errors that are detected in the incoming signal. CV counters are incremented for each BIP error detected.
UNAVAILABLE SECONDS	Number of seconds that the interface is unavailable.

show ports stats atm felineinterval

This command displays statistics (Figure 34) on the far end line over a 15-minute interval. You specify which interval, or span of intervals, to display for the command. The command uses the syntax:

```
show ports stats atm felineinterval <intervalid> [<ports>]
```

Figure 34   show ports stats atm felineinterval command output

```
Passport-8610:5/show/ports/stats/atm# felineinterval 96
======================================================================
                  ATM Far End Line Interval Stats
======================================================================
PORT    ERRORED SECONDS   SEVERELY ERRORED   CODE VIOLATION UNAVAILABLE
NUM     COUNT (ES)         COUNT (SES)          COUNT (CV-L) SECONDS(UAS)
----------------------------------------------------------------------
3/1       0                 0                 0                 0
3/5       0                 0                 0                 0
9/1       0                 0                 0                 0
9/2       0                 0                 0                 0
9/3       0                 0                 0                 0
9/4       0                 0                 0                 0
9/5       0                 0                 0                 0
9/6       0                 0                 0                 0
9/7       0                 0                 0                 0
9/8       0                 0                 0                 0
INTERVAL ID = 96
Passport-8610:5/show/ports/stats/atm#
```

Table 27 describes the information fields for the show ports stats atm felineinterval command.

Table 27   Information fields for the show ports stats atm felineinterval command

Field	Description
PORT NUM	Port number.
ERRORED SECONDS COUNT (ES)	Errored Second (ES) is a second with one or more Coding Violations (CV) or one or more incoming defects (for example, SEF, LOS, AIS, LOP).

Table 27 Information fields for the show ports stats atm felineinterval command (continued)

Field	Description
SEVERELY ERRORED COUNT (SES)	Severely Errored Second (SES) is a second with x or more CVs, or one or more incoming defects.
CODE VIOLATION COUNT (CV-L)	Coding Violations (CV) are Bit Interleaved Parity (BIP) errors that are detected in the incoming signal. CV counters are incremented for each BIP error detected.
UNAVAILABLE SECONDS (UAS)	The number of seconds that the interface is unavailable.
INTERVAL ID	Specified interval.

show ports stats atm fepathcurrent

This command displays current statistics (Figure 35) for the far end path, which is at the receiving end. The command uses the syntax:

```
show ports stats atm fepathcurrent [<ports>]
```

Figure 35 show ports stats atm fepathcurrent command output

```
Passport-8610:5/show/ports/stats/atm# fepathcurrent
============================================================================
                    ATM Far End Path Current Stats
============================================================================
PORT    ERRORED SECONDS    SEVERELY ERRORED    CODE VIOLATION    UNAVAILABLE
NUM     COUNT (ES)         COUNT (SES)         COUNT (CV-P)      SECONDS(UAS)
----------------------------------------------------------------------------
3/1         0                  0                   0                264
3/5         0                  0                   0                264
9/1         0                  0                   0                0
9/2         0                  0                   0                0
9/3         0                  0                   0                0
9/4         0                  0                   0                0
9/5         0                  0                   0                0
9/6         0                  0                   0                0
9/7         0                  0                   0                0
9/8         0                  0                   0                0

Passport-8610:5/show/ports/stats/atm# fepathcurrent
```

Table 28 describes the information fields for the show ports stats atm fepathcurrent command.

Table 28   Information fields for the show ports stats atm fepathcurrent command

Field	Description
PORT NUM	Port number.
ERRORED SECONDS COUNT (ES)	Errored Second (ES) is a second with one or more Coding Violations (CV) or one or more incoming defects (for example, SEF, LOS, AIS, LOP).
SEVERELY ERRORED COUNT (SES)	Severely Errored Second (SES) is a second with x or more CVs, or one or more incoming defects.
CODE VIOLATION COUNT (CV-P)	Coding Violations (CV) are Bit Interleaved Parity (BIP) errors that are detected in the incoming signal. CV counters are incremented for each BIP error detected.
UNAVAILABLE SECONDS (UAS)	The number of seconds that the interface is unavailable.

show ports stats atm fepathinterval

This command displays statistics (Figure 36) on the far end path over a 15-minute interval. You specify the interval or span of intervals to display. The command uses the syntax:

```
show ports stats atm fepathinterval <intervalid>[<ports>]
```

Figure 36 show ports stats atm fepathinterval command output

```
Passport-8610:5/show/ports/stats/atm# fepathinterval 96

=========================================================================
                   ATM Far End Path Interval Stats
=========================================================================
PORT     ERRORED SECONDS    SEVERELY ERRORED    CODE VIOLATION    UNAVAILABLE
NUM      COUNT (ES)         COUNT (SES)         COUNT (CV-P)      SECONDS(UAS)
-------------------------------------------------------------------------
3/1         0                  0                   0                 900
3/5         0                  0                   0                 900
9/1         0                  0                   0                 0
9/2         0                  0                   0                 0
9/3         0                  0                   0                 0
9/4         0                  0                   0                 0
9/5         0                  0                   0                 0
9/6         0                  0                   0                 0
9/7         0                  0                   0                 0
9/8         0                  0                   0                 0

INTERVAL ID = 96
Passport-8610:5/show/ports/stats/atm# fepathinterval 96
```

Table 29 describes the information fields for the show ports stats atm
fepathinterval command.

Table 29 Information fields for the show ports stats atm fepathinterval command

Field	Description
PORT NUM	Port number.
ERRORED SECONDS COUNT (ES)	Errored Second (ES) is a second with one or more Coding Violations (CV) or one or more incoming defects (for example, SEF, LOS, AIS, LOP).
SEVERELY ERRORED COUNT (SES)	Severely Errored Second (SES) is a second with x or more CVs, or one or more incoming defects.
CODE VIOLATION COUNT (CV-P)	Coding Violations (CV) are Bit Interleaved Parity (BIP) errors that are detected in the incoming signal. CV counters are incremented for each BIP error detected.
UNAVAILABLE SECONDS (UAS)	Number of seconds that the interface is unavailable.
INTERVAL ID	Specified interval.

show ports stats atm linecurrent

This command displays current statistics (Figure 37) for the line. The command uses the syntax:

```
show ports stats atm linecurrent [<ports>]
```

Figure 37   show ports stats atm linecurrent command output

```
Passport-8610:5/show/ports/stats/atm# linecurrent

========================================================================
                      ATM Line Current Stats
========================================================================
PORT   ERRORED SECONDS   SEVERELY ERRORED   CODE VIOLATION   UNAVAILABLE
NUM    COUNT (ES)        COUNT (SES)        COUNT (CV-L)     SECONDS (UAS) STATUS
------------------------------------------------------------------------
3/1         0                 0                  0               110        LineAIS
3/5         0                 0                  0               110        Line AIS
9/1         0                 0                  0               0          No Defect
9/2         0                 0                  0               0          No Defect
9/3         0                 0                  0               0          No Defect
9/4         0                 0                  0               0          No Defect
9/5         0                 0                  0               0          No Defect
9/6         0                 0                  0               0          No Defect
9/7         0                 0                  0               0          No Defect
9/8         0                 0                  0               0          No Defect

Passport-8610:5/show/ports/stats/atm# linecurrent
```

Table 30 describes the information fields for the show ports stats atm linecurrent command.

Table 30   Information fields for the show ports stats atm linecurrent command

Field	Description
PORT NUM	Port number.
ERRORED SECONDS COUNT (ES)	Errored Second (ES) is a second with one or more Coding Violations (CV) or one or more incoming defects (for example, SEF, LOS, AIS, LOP).

Table 30 Information fields for the show ports stats atm linecurrent
command (continued)

Field	Description
SEVERELY ERRORED COUNT (SES)	Severely Errored Second (SES) is a second with x or more CVs, or one or more incoming defects.
CODE VIOLATION COUNT (CV-P)	Coding Violations (CV) are Bit Interleaved Parity (BIP) errors that are detected in the incoming signal. CV counters are incremented for each BIP error detected.
UNAVAILABLE SECONDS (UAS)	Number of seconds that the interface is unavailable.
STATUS	Status of defects.

show ports stats atm lineinterval

This command displays statistics (Figure 38) for the line over a 15-minute
interval. You can specify any interval or span of intervals. The command uses the
syntax:

```
show ports stats atm lineinterval <intervalid> [<ports>]
```

Figure 38 show ports stats atm lineinterval command output

```
Passport-8610:5/show/ports# stats atm lineinterval 96
============================================================================
                        ATM Line Interval Stats
============================================================================
PORT     ERRORED SECONDS   SEVERELY ERRORED   CODE VIOLATION    UNAVAILABLE
NUM      COUNT (ES)        COUNT (SES)        COUNT (CV-L)      SECONDS (UAS)
----------------------------------------------------------------------------
3/1         0                 0                  0                 990
3/5         0                 0                  0                 990
9/1         0                 0                  0                 0
9/2         0                 0                  0                 0
9/3         0                 0                  0                 0
9/4         0                 0                  0                 0
9/5         0                 0                  0                 0
9/6         0                 0                  0                 0
9/7         0                 0                  0                 0
9/8         0                 0                  0                 0

INTERVAL ID = 96
Passport-8610:5/show/ports#
```

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Table 31 describes the information fields for the `show ports stats atm lineinterval` command.

Table 31   Information fields for The show ports stats atm lineinterval command

Field	Description
PORT NUM	Port number.
ERRORED SECONDS COUNT (ES)	Errored Second (ES) is a second with one or more Coding Violations (CV) or one or more incoming defects (for example, SEF, LOS, AIS, LOP).
SEVERELY ERRORED COUNT (SES)	Severely Errored Second (SES) is a second with x or more CVs, or one or more incoming defects.
CODE VIOLATION COUNT (CV-P)	Coding Violations (CV) are Bit Interleaved Parity (BIP) errors that are detected in the incoming signal. CV counters are incremented for each BIP error detected.
UNAVAILABLE SECONDS (UAS)	Number of seconds that the interface is unavailable.

show ports stats atm pathcurrent

This command displays current statistics (Figure 39) on the path, on the transmitting end. The command uses the syntax:

```
show ports stats atm pathcurrent [<ports>]
```

Figure 39 show ports stats atm pathcurrent command output

```
Passport-8610:5/show/ports/stats/atm# pathcurrent

========================================================================
                        ATM Path Current Stats
========================================================================
PORT   ERRED SECS   SEVERELY ERRED  CODE VIOLATION   UNAVAILABLE
NUM    COUNT (ES)   COUNT (SES)     COUNT (CV-P)     SECONDS (UAS)   STATUS WIDTH
------------------------------------------------------------------------
3/1         0            0                0          160        Path AIS  3
3/5         0            0                0          160        Path AIS  3
9/1         0            0                0          0          No Defect 2
9/2         0            0                0          0          No Defect 2
9/3         0            0                0          0          No Defect 2
9/4         0            0                0          0          No Defect 2
9/5         0            0                0          0          No Defect 2
9/6         0            0                0          0          No Defect 2
9/7         0            0                0          0          No Defect 2
9/8         0            0                0          0          No Defect 2
Passport-8610:5/show/ports/stats/atm#
```

Table 32 describes the information fields for the show ports stats atm
pathcurrent command.

Table 32 Information fields for the show ports stats atm pathcurrent command

Field	Description
PORT NUM	Port number.
ERRED SECS COUNT (ES)	Errored Second (ES) is a second with one or more Coding Violations (CV) or one or more incoming defects (for example, SEF, LOS, AIS, LOP).
SEVERELY ERRED COUNT (SES)	Severely Errored Second (SES) is a second with x or more CVs, or one or more incoming defects.
CODE VIOLATION COUNT (CV-P)	Coding Violations (CV) are Bit Interleaved Parity (BIP) errors that are detected in the incoming signal. CV counters are incremented for each BIP error detected.
UNAVAILABLE SECONDS (UAS)	Number of seconds that the interface is unavailable.
STATUSWIDTH	Status and number of defects.

show ports stats atm pathinterval

This command displays statistics (Figure 40) on the path for a 15-minute interval. You specify the interval or span of intervals to display. The command uses the syntax:

```
show ports stats atm pathinterval <intervalid> [<ports>]
```

Figure 40   show ports stats atm pathinterval command output

```
Passport-8610:5/show/ports/stats/atm# pathinterval 96


=======================================================================
                      ATM Path Interval Stats
=======================================================================
PORT     ERRORED SECONDS    SEVERELY ERRORED    CODE VIOLATION    UNAVAILABLE
NUM      COUNT (ES)         COUNT (SES)         COUNT (CV-P)      SECONDS(UAS)
-----------------------------------------------------------------------
3/1         0                  0                   0                 160
3/5         0                  0                   0                 160
9/1         0                  0                   0                 0
9/2         0                  0                   0                 0
9/3         0                  0                   0                 0
9/4         0                  0                   0                 0
9/5         0                  0                   0                 0
9/6         0                  0                   0                 0
9/7         0                  0                   0                 0
9/8         0                  0                   0                 0

INTERVAL ID = 96
Passport-8610:5/show/ports/stats/atm#
```

Table 33 describes the information fields for the show ports stats atm pathinterval command.

Table 33   Information fields for the show ports stats atm pathinterval command

Field	Description
PORT NUM	Port number.
ERRORED SECONDS COUNT (ES)	Errored Second (ES) is a second with one or more Coding Violations (CV) or one or more incoming defects (for example, SEF, LOS, AIS, LOP).

Table 33 Information fields for the show ports stats atm pathinterval command (continued)

Field	Description
SEVERELY ERRORED COUNT (SES)	Severely Errored Second (SES) is a second with x or more CVs, or one or more incoming defects.
CODE VIOLATION COUNT (CV-P)	Coding Violations (CV) are Bit Interleaved Parity (BIP) errors that are detected in the incoming signal. CV counters are incremented for each BIP error detected.
UNAVAILABLE SECONDS (UAS)	Number of seconds that the interface is unavailable.
INTERVAL ID	Specified interval.

show ports stats atm sectioncurrent

This command displays the current statistics (Figure 41) on the section. The command uses the syntax:

```
show ports stats atm sectioncurrent[<ports>]
```

Figure 41 show ports stats atm sectioncurrent command output

```
Passport-8610:5/show/ports/stats/atm# sectioncurrent

=============================================================================
                         ATM Section Current Stats
=============================================================================
PORT  ERRORED SECONDS SEVERELY ERRORED CODE VIOLATION  SEVERELY ERRORED
NUM   COUNT (ES)       COUNT (SES)      COUNT (CV-S)    FRAMES (SEF) STATUS
-----------------------------------------------------------------------------
3/1   796             796              0               796          LOS
3/5   796             796              0               796          LOS
9/1   0               0                0               0            No Defect
9/2   0               0                0               0            No Defect
9/3   0               0                0               0            No Defect
9/4   0               0                0               0            No Defect
9/5   0               0                0               0            No Defect
9/6   0               0                0               0            No Defect
9/7   0               0                0               0            No Defect
Passport-8610:5/show/ports/stats/atm# sectioncurrent
```

Table 34 describes the information fields for the show ports stats atm sectioncurrent command.

Table 34   Information fields for the show ports stats atm sectioncurrent command

Field	Description
PORT NUM	Port number.
ERRORED SECONDS COUNT (ES)	Errored Second (ES) is a second with one or more Coding Violations (CV) or one or more incoming defects (for example, SEF, LOS, AIS, LOP).
SEVERELY ERRORED COUNT (SES)	Severely Errored Second (SES) is a second with x or more CVs, or one or more incoming defects.
CODE VIOLATION COUNT (CV-S)	Coding Violations (CV) are Bit Interleaved Parity (BIP) errors that are detected in the incoming signal. CV counters are incremented for each BIP error detected.
SEVERELY ERRORED FRAMES (SEF)	Number of seconds that the interface is unavailable.
STATUS	Indicates status of defects.

show ports stats atm sectioninterval

This command displays statistics (Figure 42) on the section over a 15-minute interval. You specify the interval or span of intervals to display. The command uses the syntax:

```
show ports stats atm sectioninterval <intervalid> [<ports>]
```

Figure 42 show ports stats atm sectioninterval command output

```
Passport-8610:5/show/ports/stats/atm# sectioninterval 96
========================================================================
                      ATM Section Interval Stats
========================================================================
PORT    ERRORED SECONDS   SEVERELY ERRORED   CODE VIOLATION SEVERELY ERRORED
NUM     COUNT (ES)        COUNT (SES)        COUNT (CV-S) FRAMES (SEF)
------------------------------------------------------------------------
3/1     900               900                0                 900
3/5     900               900                0                 900
9/1     0                 0                  0                 0
9/2     0                 0                  0                 0
9/3     0                 0                  0                 0
9/4     0                 0                  0                 0
9/5     0                 0                  0                 0
9/6     0                 0                  0                 0
9/7     0                 0                  0                 0
9/8     0                 0                  0                 0
INTERVAL ID = 96
Passport-8610:5/show/ports/stats/atm# sectioninterval 96
```

Table 35 describes the information fields for the show ports stats atm sectioninterval command.

Table 35 Information fields for the show ports stats atm sectioninterval command

Field	Description
PORT NUM	Port number.
ERRORED SECONDS COUNT (ES)	Errored Second (ES) is a second with one or more Coding Violations (CV) or one or more incoming defects (for example, SEF, LOS, AIS, LOP).
SEVERELY ERRORED COUNT (SES)	Severely Errored Second (SES) is a second with x or more CVs, or one or more incoming defects.
CODE VIOLATION COUNT (CV-S)	Coding Violations (CV) are Bit Interleaved Parity (BIP) errors that are detected in the incoming signal. CV counters are incremented for each BIP error detected.
SEVERELY ERRORED FRAMES (SEF)	Severely Errored Framing Second (SEFs) is a second containing one or more SEF events.
INTERVAL ID	Specified interval.

show ports stats atm sonetmediumtbl

This command displays statistics (Figure 43) on the SONET medium. The command uses the syntax:

```
show ports stats atm sonetmediumtbl [<ports>]
```

Figure 43   show ports stats atm sonetmediumtbl command output

```
Passport-8610:5/show/ports/stats/atm# sonetmediumtbl
  ========================================================================
                        ATM SONET Medium Table
========================================================================
PORT      MEDIUM      TIME       VALID           LINE   LINE      CIRCUIT
NUM       TYPE        ELAPSED    INTERVALS       CODING TYPE      ID
------------------------------------------------------------------------
3/1           0         731         96             4      3       53754784
3/5           0         731         96             4      3       53754784
9/1           0         715         96             4      4       53754784
9/2           0         715         96             4      4       53754784
9/3           0         715         96             4      4       53754784
9/4           0         715         96             4      4       53754784
9/5           0         715         96             4      4       53754784
9/6           0         715         96             4      4       53754784
9/7           0         715         96             4      4       53754784
9/8           0         715         96             4      4       53754784

Passport-8610:5/show/ports/stats/atm# sonetmediumtbl
```

Table 36 describes the information fields for the show ports stats atm sonetmediumtbl command.

Table 36   Information fields for output of the show ports stats atm sonetmediumtbl command

Field	Description
PORT NUM	Port number.
MEDIUM TYPE	Identifies whether a sonet or sdh signal is used across the interface.

Table 36 Information fields for output of the show ports stats atm sonetmediumtbl command (continued)

Field	Description
TIME ELAPSED	Number of seconds, including partial seconds, that have elapsed since the beginning of the current measurement period. If the current interval exceeds the maximum value, the agent will return the maximum value.
VALID INTERVALS	Number of previous 15-minute intervals for which data was collected.
LINE CODING	Line coding for this interface. The B3ZS and CMI are used for electrical SONET/SDH signals (STS-1 and STS-3). The Non-Return to Zero (NZR) and the Return to Zero are used for optical SONET/SDH signals.
LINE TYPE	Line type for this interface. The line types are Single Mode fiber or Multi-Mode fiber interfaces.
CIRCUIT ID	Transmission vendor's circuit identifier, to facilitate troubleshooting.

Web management

Web management allows you to monitor the Passport 8672ATM Module through a World Wide Web browser from anywhere on your network. The Web interface provides many of the same monitoring features as the Device Manager software.

For information on:

- Accessing your switch through the Web interface
- Descriptions of the Web page layout

refer to *Getting Started with the Passport 8000 Series Management Software*.

ATM folder

Use the Web interface to monitor the Passport 8672ATM Module parameters. When you access the Web interface, the System page is displayed. The ATM folder is in the navigation pane on the left of the system page (Figure 44).

Figure 44   System page

Table 37 describes the fields displayed in the System page.

Table 37   System page fields

Field	Description
sysDescr	Port type of this interface. This will be OC-3 SMF/MMF or OC-12 SMF/MMF for a port on the Passport 8672ATM Module
sysUpTime	Value of system up time.
sysContact	Contact name.
sysName	Port name.
sysLocation	System location.
Authentication Traps	Enables or disables traps.
EnableWebServer	Enables the Web server.
EnableAccessPolicy	Enables access limits to be set.

Table 37 System page fields (continued)

Field	Description
LastChange	Value of sysUpTime at the time the interface entered its current operational state. If the current state was entered prior to the last reinitialization of the local network management subsystem, the value is zero
LastVlanChange	Value of sysUpTime for the VLAN
LastRuntimeConfigSave	Value of sysUpTime at the time that configuration was saved.
LastRuntimeConfigSavetoSlave	Value of sysUpTime at the time that configuration was saved.
LastBootConfigSave	Value of sysUpTime at the time the last reboot occurred.
LastBootConfigSaveOnSlave	Value of sysUpTime at the time the last reboot saved configuration changes.
DefautlRuntimeConfigFileName	Default runtime configuration file name.
DefaultBootConfigFileName	Default configuration file name.
ConfigFileName	Configuration file name.

When you click ATM in the navigation pane, the headings in the ATM menu are displayed. The headings provide options for viewing ATM parameters (Figure 45).

Figure 45   ATM menu

To view the current PVC parameters, in the ATM menu, click PVC. The PVC page opens (Figure 46).

Figure 46 PVC page
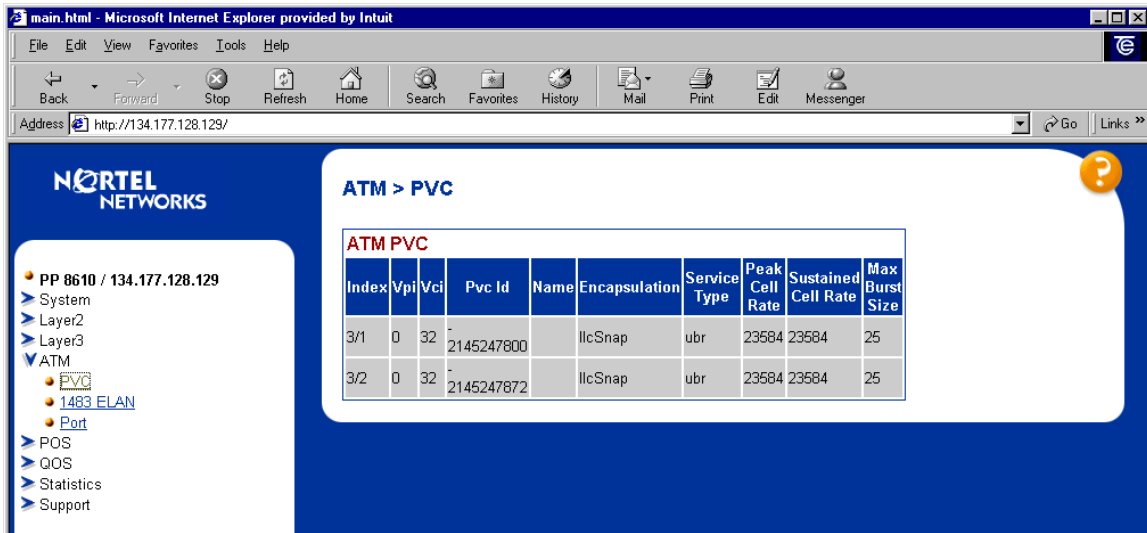
Table 38 describes the fields displayed in the PVC page.

Table 38 PVC page items

Field	Description
Index	Unique value assigned to each interface.
Vpi	VPI number (Enter 0...255).
Vci	VCI number.
Pvc Id	PVC IDs, minimum of 1 required.
Name	Emulated LAN Name.
Encapsulation	LLC/SNAP, NULL; If LLC/SNAP, then for bridge IP or IPX.
Service Type	Unspecified bit rate or variable bit rate.
Peak Cell Rate	Peak cell rate, in cells/second.
Sustained Cell Rate	Upper bound of the cell rate that is long relative to that of the PCR.
Max Burst Size	Maximum burst size determined by the signaling method. It is coded as a number of cells that can be transmitted at peak rate and still conform to the overall algorithm; only applicable if it is VBR.

To view the current 1483 ELAN parameters, in the ATM menu, click 1483 ELAN. The 1483 ELAN page opens. Figure 47 shows the left section of the page. To view the entire table, use the scroll arrow at the bottom right corner. Figure 48 shows the right section of the page.

Figure 47   1483 ELAN page, (left section)

ATM > 1483 ELAN

ORKS

'.128.129

ATM 1483 ELAN

Index	Elan Id	Num Pvc Ids	Pvclds	Vlan Ids	Connect Type	Vlan Mac Address	Dummy Mac Address	Local Ip Address	Remote Ip Address
3/1		1	0,32			00:E0:FF:7B:8A:3C		10.32.5.10	1
3/2		1	0,32			00:E0:FF:7B:8A:3D		10.32.5.5	1

Figure 48   1483 ELAN page, (right section)

an s	Connect Type	Vlan Mac Address	Dummy Mac Address	Local Ip Address	Remote Ip Address	In Arp Send Enable	In Arp Send Interval	Ipx Vlan Encap Method	Ipx Network Num	Stgld	Stg Tagged Bpdu Vlan Id
		00:E0:FF:7B:8A:3C		10.32.5.10	1	0	0	other	1	0	
		00:E0:FF:7B:8A:3D		10.32.5.5	1	0	0	other	1	0	

Table 39 describes the fields displayed in the 1483 ELAN page.

Table 39   1483 ELAN page items

Field	Description
Index	Unique value assigned to each interface.
Elan Id	Internal ID of the ELAN.
Num Pvc Ids	Number of PVC pairs used in the ELAN.
PvcIds	PVC IDs, minimum of 1 required.
Vlan Ids	VLAN to which the ELAN belongs.
Connect Type	Type of connection: bridged, IP, or IPX.
Vlan Mac Address	MAC address assigned to this VLAN. Used in IP and IPX routed circuits when there is no appropriate destination MAC to use.
Dummy Mac Address	Dummy MAC address assigned to this VLAN. Used in IP and IPX routed circuits when there is no appropriate source MAC to use.
Local Ip Address	Local IP address for connection type IP.
Remote Ip Address	Remote IP address for connection type IP.
In Arp Send Enable	Enables ARP sending on the ELAN for connection type IP.
In Arp Send Interval	Interval of ARP sending for connection type IP.
Ipx Vlan Encap Method	IPX VLAN encapsulation method.
Ipx Network Num	Network number; IPX only.
StgId	Spanning tree group ID. Only for bridge connection type.
Stg Tagged Bpdu Vlan Id	The VLAN ID used for tagging BPDUs.

To view the current port parameters, in the ATM menu, click Port. The Port page opens (Figure 49).

Figure 49 Port page
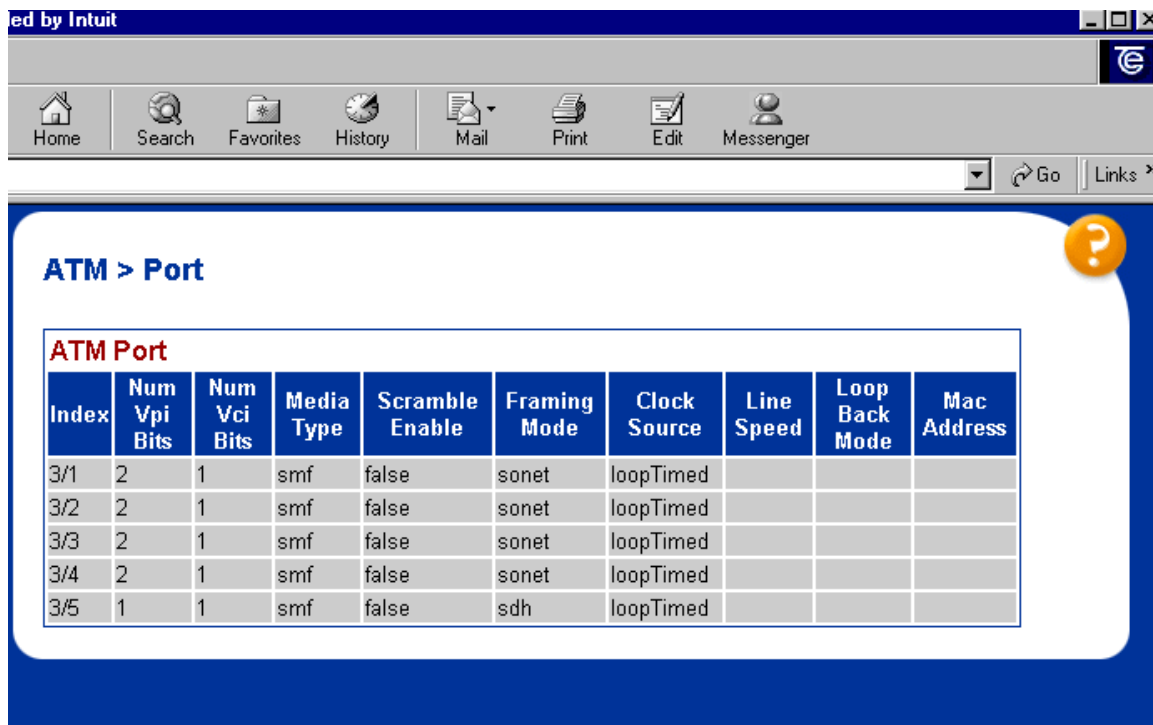
Table 40 describes the fields displayed in the Port page.

Table 40 Port page items

Field	Description
Index	Interface Index.
Num Vpi Bits	For OC-3, 11 bits split between NumVpiBits and NumVciBits. NumVciBits cannot exceed 6 bits for OC-3c. For OC-12c, 13 bits split between NumVpiBits and NumVciBits. NumVpiBits cannot exceed 8 bits for OC-12c.
Num Vci Bits	This field is read only. It takes remaining bits from NumVpiBits. For example, if NumVpiBits is 3 for OC-3c, then NumVciBits is 8.
Media Type	Either SMF (single-mode fiber) or MMF (multi-mode fiber).
Scramble Enable	Enables or disables scrambling.

Table 40   Port page items (continued)

Field	Description
Framing Mode	Sets the framing for the port to: • sonet means the Synchronous Optical Network format; standard format used in North America. • sdh means the Synchronous Digital Hierarchy clock format; standard format used in Europe.
Clock Source	Sets the framing clock source for the port to: • loopTimed means clocking is derived from SONET line**.** • freeRunning means clocking is derived from on-board clock. Note that if you have two connected Passport 8672ATM Modules, you must set both to freeRunning or one to freeRunning and one to loopTimed; do not set both to loopTimed.
Line Speed	155 MBS or 622 MBS
Loop Back Mode	Sets the loopback mode to: • off • internal • external
Mac Address	The MAC address assigned to this VLAN (used in IP and IPX routed circuits when there is no appropriate destination MAC to use).

Chapter 6
Configuring the Passport 8672ATM Module

This chapter contains the following topics:

*   "Initial configuration," next
*   "Basic configuration procedures" on page 118

For detailed information on Device Manager, and the CLI, refer to:

*   *Getting Started with the Passport 8000 Series Management Software*
*   *Reference for Passport 8000 Series Management Software Routing Operations,* and
*   *Reference for Passport 8000 Series Management Software Switching Operations*.

One Passport 8690 SF module acts as the CPU for the chassis, and the other module is the standby CPU, taking over in case of failure. Note that the administrative and operational configurations of the Passport 8672ATM Module are *not* retained after failover. When a CPU failover occurs, all traffic on the chassis stops momentarily while the standby CPU re-initializes all input/output modules.

Initial configuration

This section provides information on the initial configuration procedures for the Passport 8672ATM Module.

Before you can pass traffic using the Passport 8672ATM Module with its installed MDA, you must change the clock setting. You can do this in one of two ways:

*   "Changing the clock setting using Device Manager," next

> ➡ **Note:** The Passport 8672ATM Module supports only Ethernet ELANs.

Changing the clock setting using Device Manager

This section provides instructions on changing the clock setting.

> ➡ **Note:** If you are connecting one Passport 8672ATM Module directly to another Passport 8672ATM Module without going through the SONET cloud, the clock mode at both ends of the circuit may be free-running, but only one end of this circuit may be configured as loop-timed.

To change the clock setting using Device Manager:

1   Highlight the port.

2   Choose Edit > Port.

The Port dialog box opens with the Interface tab displayed (Figure 12 on page 52).

3   Click the ATM tab.

The ATM tab opens. (Figure 50).

Figure 50   ATM tab
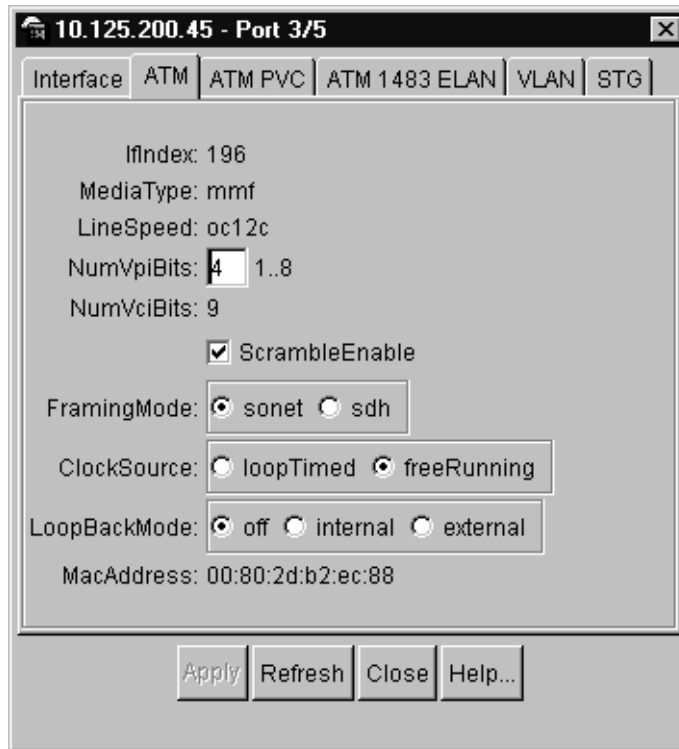
Table 9 on page 60 describes the ATM tab fields.

4   To set the clock setting, in the ClockSource section, click loopTimed or freeRunning.

5   Click Apply.

Changing the clock setting using the CLI

To change the clock setting using the CLI, enter:

```
config atm <ports> clock-source <loop-timed|free-running>
```

See "config atm command" on page 78.

Basic configuration procedures

This section provides instructions on configuring the Passport 8672ATM Module with Device Manager to perform basic networking tasks:

- "Bridging point-to-point traffic using an ATM 1483 PVC using Device Manager," next
- "Bridging point-to-point traffic using an ATM 1483 PVC using the CLI" on page 125
- "Bridging point-to-multipoint traffic using an ATM 1483 PVC using Device Manager" on page 126
- "Bridging point-to-multipoint traffic using an ATM 1483 PVC using the CLI" on page 127
- "Configuring an IP routing 1483 PVC using Device Manager" on page 128
- "Configuring an IP routing 1483 PVC using the CLI" on page 134
- "Configuring an IPX routing 1483 PVC using Device Manager" on page 135
- "Configuring an IPX routing 1483 PVC using the CLI" on page 141

Bridging point-to-point traffic using an ATM 1483 PVC using Device Manager

In this configuration (Figure 51), the Passport 8672ATM Module has an ATM 1483 PVC bridged across an ATM PVC network. Use a separate ATM1483 PVC for each VLAN. The VLANs may appear on the same port or on different ports of the Passport 8672ATM Modules. You cannot bridge between PVCs in the same VLAN on the same port of the Passport 8672ATM Module.

Nortel Networks recommends that you create a new STP group for bridging between ATM ports and Ethernet ports. You should remove the ATM port from the default STP group and from the default VLAN. This minimizes BPDU traffic to the ATM port. Passport ports receive BPDU traffic for the default STP group and the tagged VLAN.

Figure 51   Point-to-point bridging using 1483 PVCs
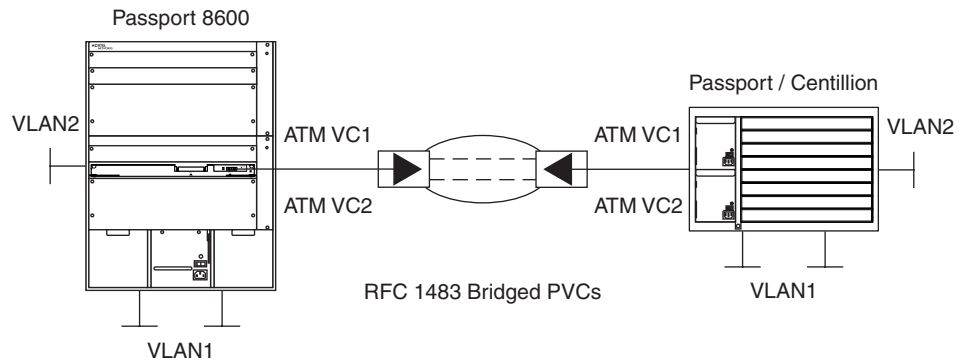
To complete this configuration, use the following procedures:

Use Device Manager and or CLI to perform these configuration and related tasks on the Passport 8672ATM Module.

Creating a VLAN "byPort" and adding ports

1   From the Device Manager menu bar, choose VLAN > VLANs.

The VLAN dialog box opens with the Basic tab displayed (Figure 52).

Figure 52 Basic tab

Table 41 describes the Basic tab fields.

Table 41 Basic tab fields

Field	Description
Id	Unique VLAN identifier.
Name	An administratively-assigned name for this VLAN.
ColorIdentifier	An administratively-assigned color code for this VLAN. The value of this object is used by the VLAN Manager GUI tool to select a color when it draws this VLAN on the screen.
Type	Type of VLAN, distinguished according to the policy used to define its port membership.
StgId	Spanning Tree Group (STG) used by the VLAN to determine the state of its ports. If the VLAN is not associated with any STG, this value should be set to zero.
PortMembers	Set of ports that are members (static or dynamic) of this VLAN.
ActiveMembers	Set of ports that are currently active in this VLAN. Active ports include all static ports and any dynamic ports where the VLAN policy was met.
StaticMembers	Set of ports that are static members of this VLAN. A static member of a VLAN is always active and is never aged out.
NotAllowtoJoin	Set of ports that are not allowed to become members of this VLAN.
ProtocolId	Protocol identifier of this VLAN. This value is meaningful only if rcVlanType is equal to byProtocolId(3).

Table 41   Basic tab fields (continued)

Field	Description
SubnetAddr	IP subnet address of this VLAN. This value is meaningful only if rcVlanType is equal to byIpSubnet(2). For other VLAN types it should have the value 0.0.0.0.
SubnetMask	IP subnet mask of this VLAN. This value is meaningful only if rcVlanType is equal to byIpSubnet(2). For other VLAN types it should have the value 0.0.0.0.

2   Click Insert.

The VLAN, Insert Basic dialog box opens (Figure 53).

Figure 53   VLAN, Insert Basic dialog box

Table 42 describes the VLAN, Insert Basic dialog box fields.

Table 42 VLAN, Insert Basic dialog box fields

Field	Description
Id	Unique VLAN identifier.
Name	An administratively-assigned name for this VLAN.
ColorIdentifier	An administratively-assigned color code for this VLAN. The value of this object is used by the VLAN Manager GUI tool to select a color when it draws this VLAN on the screen.
StgId	Spanning Tree Group (STG) used by the VLAN to determine the state of its ports. If the VLAN is not associated with any STG, this value should be set to zero.
Type	Type of VLAN, distinguished according to the policy used to define its port membership.
PortMembers	Set of ports that are members (static or dynamic) of this VLAN.
QoSLevel	Quality of Service level.
Ds field	An integer (1...64).

3 Do the following:

a In the Id field, enter the Id number for the VLAN (an integer between 0 and 4094).

b In the Name field, enter the VLAN name.

c In the Color Identifier field, select a color from the list.

d In the StgIdField, select the STG for the port.

e In the Type field, chick byPort.

f In the PortMembers field, click the button to view ports.

The VlanPortMembers dialog box opens (Figure 54).

Figure 54   VlanPortMembers dialog box
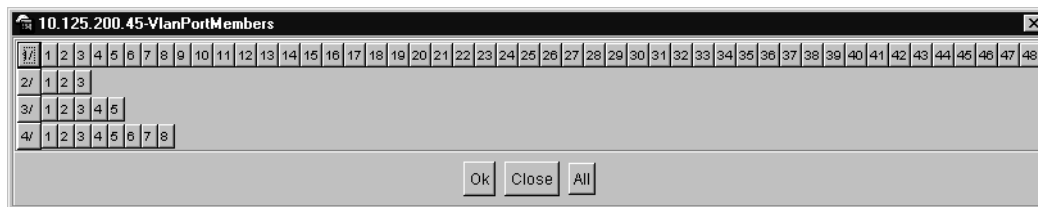
Table 43 describes the VlanPortMembers dialog box fields.

Table 43   VlanPortMembers dialog box fields

Field	Description
Left column	Card number.
All other numbers	Port numbers.

4   Click port numbers to add ports to the VLAN.

5   Click OK.

The VlanPortMembers dialog box closes and the VLAN, Insert Basic dialog is redisplayed.

6   Click Close.

Configuring an ATM 1483 PVC

To configure an ATM 1483 PVC:

1   From the Device Manager menu bar,choose Edit > ATM.

The port dialog box opens with the ATM tab displayed (Figure 16).

Table 9 on page 60 describes the ATM tab fields.

2   Click the ATM PVC tab.

The ATM PVC tab opens (Figure 17 on page 62).

Table 10 on page 62 describes the ATM PVC tab fields.

3   Click Insert.

The ATM, Insert ATM dialog box opens (Figure 18 on page 63).

Table 11 on page 63 describes the ATM, Insert ATM tab fields.

4 Do the following:

a In the Port field, click the button to view ports.

b Select the port.

c In the Vpi field, type the VPI-bit size (an integer between 0 and 255).

d In the Vci field, type the VCI-bit size (an integer between 0 and 65, 535).

e In the Name field, type the name of the ATM PVC card.

f In the Encapsulation field, select the encapsulation method (null or IIcSnap).

g In the Service type field, select the service type (ubr or vbr).

h If you select vbr in the Service type field, complete these fields:

In the PeakCellRate field, enter the PCR (an integer between 86 and 733490).

In the SustainedCellRate field, enter the SCR (an integer between 86 and 733490).

In the MaxBurstSize field, type the maximum burst size (an integer between 2 and 255).

5 Click Insert.

The ATM, Insert ATM dialog box closes, and the ATM PVC tab is redisplayed.

6 Click Close.

Associating the PVC with the VLAN

1 From the Device Manager menu bar, choose Edit > ATM.

The Port dialog box opens with the ATM tab displayed (Figure 16 on page 60).

Table 9 on page 60 describes the ATM tab items.

2 Click the ATM 1483 ELAN tab.

The ATM 1483 ELAN tab opens.

3 Click Insert.

The Insert ATM 1483 ELAN dialog box opens (Figure 22 on page 67).

Table 13 on page 68 describes the Insert ATM 1483 ELAN dialog box fields.

4   Do the following:

a   In the Port field, click the button to view ports.

b   Select the port for which you configured the ATM PVC in "Configuring two ATM 1483 PVCs on the same ATM port" on page 127.

c   In the VlanId field, enter the VLAN Id you created in "Creating a VLAN "byPort" and adding ports" on page 119.

d   In the PvcIds field, enter the value for the PVC IDs you created in "Configuring two ATM 1483 PVCs on the same ATM port" on page 127.

e   In the ConnectType field, select bridged.

5   Click Insert.

The Insert ATM 1483 ELAN dialog box closes, and the ATM 1483 ELAN tab is redisplayed.

6   Click Close.

Bridging point-to-point traffic using an ATM 1483 PVC using the CLI

To configure the Passport 8672ATM Module for ATM 1483 PVCs for VLANs bridged across an ATM PVC network, using the CLI:

1   To create a VLAN by port, enter:

```
config vlan 2 create byport 1
```

2   To add an ATM port (in this example, 1/1) and several Ethernet ports (in this example, 3/40 to 3/48) to the VLAN, enter:

```
config vlan 2 port add 1/1, 3/40-3/48
```

3   To configure an ATM 1483 PVC for null-encapsulation and ubr, enter:

```
config atm 1/1 pvc create 0.100 enc 1483-null serv
ubr
```

Alternatively, to configure an ATM 1483 PVC for null-encapsulation and vbr, enter:

```
config atm 1/1 pvc create 0.100 enc 1483-null serv
vbr<PCR value>scr<SCR value> mbs<MBS value>
```

4 To associate the ATM 1483 bridged PVC with a VLAN, enter:

```
config atm 1/1 pvc 1483 elan create 2 0.100
```

Bridging point-to-multipoint traffic using an ATM 1483 PVC using Device Manager

In the configuration shown in Figure 55, the Passport 8672ATM Module is configured as a bridging hub to spokes through the WAN. Bridging is not allowed between PVCs in the same ELAN. For point-to-multipoint bridging, the end stations connected by each PVC circuit cannot communicate with one another.

Figure 55 Point-to-multipoint bridging using ATM 1483 PVCs
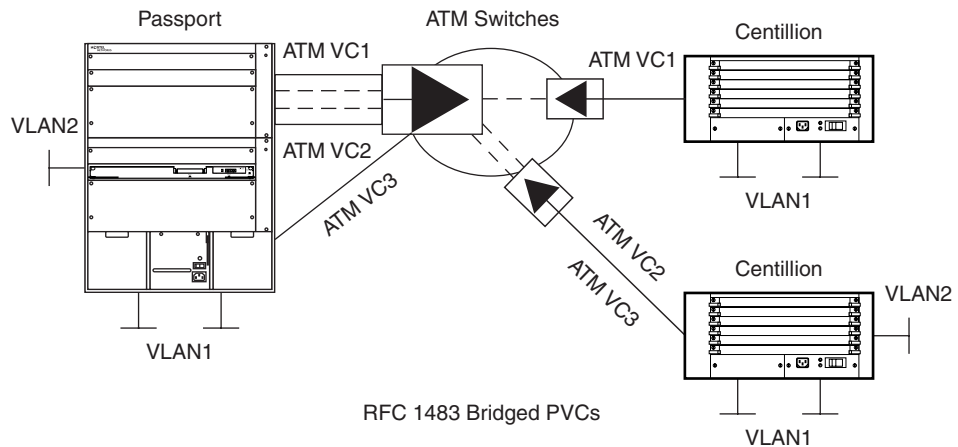
This configuration requires the following procedures:

- "Configuring two ATM 1483 PVCs on the same ATM port," next
- "Associating the PVCs with the same VLAN" on page 127

Use Device Manager or the CLI to perform these configuration and related tasks on the Passport 8672ATM Module.

Configuring two ATM 1483 PVCs on the same ATM port

Follow the procedures outlined in "Bridging point-to-point traffic using an ATM 1483 PVC using Device Manager" on page 118 to configure two ATM PVCs on the same ATM port.

Associating the PVCs with the same VLAN

Follow the procedures outlined in "Associating the PVC with the VLAN" on page 124 to associate both PVCs with the same VLAN.

The Passport 8672ATM module directs the two ATM 1483 bridged PVCs to two different ATM ports on the other end.

Bridging point-to-multipoint traffic using an ATM 1483 PVC using the CLI

To configure two ATM 1483 bridged PVCs using the CLI:

1   To create two VLANs by port, enter:

```
config vlan 2 create byport 1
```

2   To add ATM port (1/1) and some Ethernet ports (3/40-3/48) into the VLAN, enter:

```
config vlan 2 port add 1/1, 3/40-3/48
```

3   To create a 1483 Null-encapsulation UBR PVC, enter

```
config atm 1/1 pvc create 0.100 ecn 1483-null serv
ubr
```

Or create a 1483 Null-encapsulation VBR PVC.

```
config atm 1/1 pvc create 0.100 enc 1483-null serv
vbr<PCR value>scr<SCR value> mbs<MBS value>
```

4   To associate the two 1483 bridged PVCs with the same VLAN, enter:

```
config atm 1/1 pvc 1483 elan create 2 0.100, 0.101
```

The Passport 8672ATM module directs the two ATM 1483 bridged PVCs to two different ATM ports on the other end.

Configuring an IP routing 1483 PVC using Device Manager

→ **Note:** Because the spanning tree protocol (STP) is not supported on the Passport 8672ATM Module, ensure that you have *no* parallel paths to the destination.

In the configuration shown in Figure 56, the Passport 8672ATM Module has an ATM 1483 PVC as the sole member of a VLAN configured for IP routing.

Figure 56 IP routing with ATM 1483 PVCs
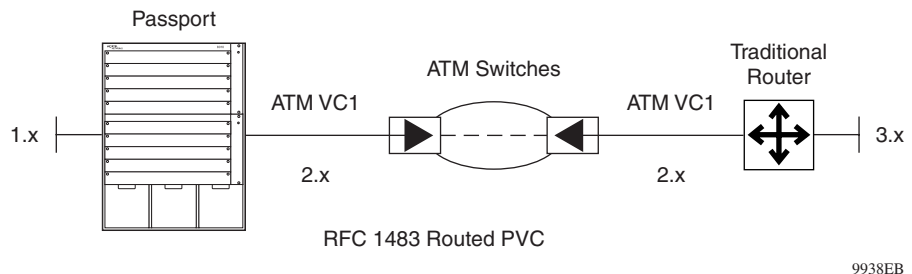
→ **Note:** Each configured ATM 1483 PVC uses one VLAN. The Passport 8672ATM Module can be configured for a maximum of 256 VLANs per MDA and a maximum of 512 VLANs per card.

This configuration requires the following procedures:

- "Creating a VLAN "byPort" and adding ports" on page 119
- "Assigning IP addresses" on page 129
- "Enabling RIP routing" on page 131
- "Configuring a null-encapsulation PVC" on page 134
- "Associating the PVC with the VLAN" on page 134

Creating two VLANs "byPort"

To create two VLANs "byPort," see "Creating a VLAN "byPort" and adding ports" on page 119. One VLAN must have only one ATM port. The second VLAN can have one or multiple Ethernet ports.

Assigning IP addresses

To assign an IP address to both VLANs:

1 From the Device Manager menu bar, choose VLAN > VLANs.

The VLAN dialog box opens with the Basic tab displayed (Figure 52 on page 120).

Table 41 on page 120 describes the fields in the VLAN Basic tab.

2 Click one of the VLANs.

3 Click IP.

The IP, VLAN dialog box opens with the IP Address tab displayed (Figure 57).

Figure 57 IP Address tab

Table 44 describes the IP Address tab fields.

Table 44 IP Address tab fields

Field	Description
Ip Address	IP address of the VLAN
Net Mask	Subnet mask associated with the IP address of the entry.
BcastAddrFormat	IP broadcast address format used on this interface.
ReasmMaxSize	Size of the largest IP datagram which this entity can re-assemble from incoming IP fragmented datagrams received on this interface.

Table 44 IP Address tab fields (continued)

Field	Description
VlanId	Unique VLAN identifier.
BrouterPort	Indicates whether this entry corresponds to a brouter port as opposed to a routable VLAN. This value cannot be changed after the row is created.

4 Click Insert.

The IP, VLAN, Insert IP Address dialog box opens (Figure 58).

Figure 58 IP, VLAN, Insert IP Address dialog box
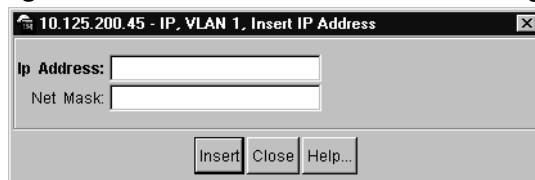
Table 45 describes the IP, VLAN, Insert IP Address dialog box fields.

Table 45 IP, VLAN, Insert IP Address dialog box fields

Field	Description
Ip Address	IP address of the VLAN
Net Mask	Subnet mask associated with the IP address of the entry.

5 In the IP Address field, type the IP address for the VLAN.

6 In the Net Mask field, type the net mask value.

> **Note:** Use different subnets for each IP address.

7 Click Insert.

The IP, VLAN, Insert IP Address dialog box closes and the IP, VLAN dialog box is redisplayed.

8 Click Close.

Enabling RIP routing

1 From the Device Manager menu bar, choose VLAN > VLANs.

The VLAN dialog box opens with the Basic tab displayed (Figure 52).

Table 41 on page 120 describes the VLAN Basic tab fields.

2 Click one of the VLANs.

3 Click IP.

The IP, VLAN dialog box opens with the IP Address tab displayed (Figure 57 on page 129).

Table 44 on page 129 describes the IP Address tab fields.

4 Click the RIP tab.

The RIP tab opens (Figure 59).

Figure 59   RIP tab

Table 46 describes the RIP tab fields.

Table 46   RIP tab fields

Field	Description
Enable	IP address of the VLAN.
Supply	Enables or disables RIP supply on the specified interface.

Table 46 RIP tab fields (continued)

Field	Description
Listen	Enables or disables RIP reception on the specified interface.
Poison	Enables or disables operation of poison reverse on the specified interface. If poison is disabled, split-horizon operation is enabled.
AdvertiseDefaultRoute	Indicates whether this interface should advertise a RIP default route.
AcceptDefaultRoute	Indicates whether this interface should accept a RIP default route.
TriggeredUpdateEnable	Indicates whether the RIP triggered update feature should be enabled on this interface.
AutoAggregateEnable	Indicates whether the auto aggregation feature should be enabled on this interface.
AdvertiseWhenDown	Indicates whether vlan state change should be notified to layer 3 or not, provided the vlan is configured as routable interface. Also used for single routable ports, in that case the criteria for state is PortOperStatus.

5 Click Enable.

6 Click Apply.

The IP Address tab is redisplayed.

7 Click Close.

Enabling OSPF routing

If the routing protocol is OSPF, to enable OSPF routing:

1 From the Device Manager menu bar, choose VLAN > VLANs.

The VLAN dialog box opens with the Basic tab displayed (Figure 52 on page 120).

Table 41 on page 120 describes the fields in the VLAN Basic tab.

2 Click one of the VLANs.

3 Click IP.

The IP, VLAN, Insert IP Address dialog box opens with the IP Address tab displayed (Figure 58 on page 130).

Table 44 on page 129 describes the Ip Address tab fields.

4   Click the OSPF tab.

The OSPF tab opens (Figure 60).

Figure 60   OSPF tab

Table 47 describes the OSPF tab fields.

Table 47   OSPF tab fields

Field	Description
Enable	Enables or disables OSPF routing on the specified interface
HelloInterval	Length of time, in seconds, between the Hello packets that the router sends on the interface. This value must be the same for all routers attached to a common network.
RtrDeadInterval	Number of seconds that a router's Hello packets have not been seen before its neighbors declare the router down.
DesigRtrPriority	Priority of this interface. Used in multi-access networks, this field is used in the designated router election algorithm. The value 0 signifies that the router is not eligible to become the designated router on this particular network.

Table 47　OSPF tab fields (continued)

Field	Description
Metric	Metric for this type of service (TOS) on this interface. The default value of the TOS 0 Metric is (10^9 / ifSpeed). The value FFFF means "no route via this TOS."
AuthType	Authentication type specified for an interface. Additional authentication types may be assigned locally.
AreaId	A 32-bit integer uniquely identifying the area to which the interface connects. Area ID 0.0.0.0 is used for the OSPF backbone.
AdvertiseWhenDown	Value used indicates whether or not a VLAN state change should be notified to layer 3, provided that the VLAN is configured as a routable interface. Also used for single routable ports. In that case, the criteria for state is PortOperStatus.

5　Click Enable.

6　Click Apply.

The OSPF tab closes, and the IP Address tab is redisplayed.

7　Click Close.

Configuring a null-encapsulation PVC

See "Configuring two ATM 1483 PVCs on the same ATM port" on page 127.

Associating the PVC with the VLAN

See "Associating the PVC with the VLAN" on page 124.

Follow the instructions there except, in the ConnectType field, select IP instead of bridged.

Configuring an IP routing 1483 PVC using the CLI

To configure the Passport 8672ATM Module for an ATM 1483 IP routed PVC, using the CLI:

1　To create two VLANs by port, enter:

```
config vlan 2 create byport 1

config vlan 3 create byport 1
```

2   To add an ATM port (in this example, 1/1) and several Ethernet ports (in this
    example, 3/40 to 3/48) to the VLAN, enter:

```
config vlan 2 port add 1/1

config vlan 3 port add 3/40-3/48
```

3   To configure IP addresses on both VLANs (use two different subnets), enter:

```
config vlan 2 ip <ip address>/<subnet mask>

config vlan 3 ip <ip address>/<subnet mask>
```

4   To enable routing on both VLANs, enter:

```
config vlan 2 ip rip enable

config vlan 3 ip rip enable
```

If necessary, use the following CLI commands to change RIP parameters:

```
config vlan 2 ip rip <sub-command>

config ip rip <sub-command>
```

5   To configure an ATM 1483 PVC with LLC/SNAP-encapsulation and UBR,
    enter:

```
config atm 1/1 pvc create 0.100 enc 1483-llc serv
ubr
```

6   To associate the 1483 IP routed PVC with a VLAN, enter:

```
config atm 1/1 pvc 1483 ip create 2 0.100 <remote
side IP address>
```

The remote IP address should be in the same subnet with the ATM port IP
address.

Configuring an IPX routing 1483 PVC using Device Manager

In the configuration shown in Figure 61, the Passport 8672ATM Module has an
ATM 1483 PVC as the sole member of a VLAN configured for IPX routing.

Figure 61 IPX routing with ATM 1483 PVCs
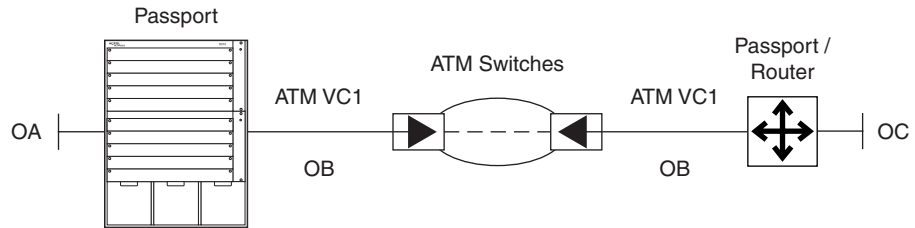
> **Note:** Each configured ATM 1483 PVC uses one VLAN. The Passport 8672ATM Module can be configured for a maximum of 256 VLANs per MDA and a maximum of 512 VLANs per card.

This configuration requires the following procedures:

- "Creating two VLANs "byPort"," next
- "Configuring IPX network numbers" on page 136
- "Enabling IPX forwarding" on page 138
- "Enabling IPX network number forwarding" on page 139
- "Configuring a null-encapsulation PVC" on page 140
- "Associating the PVC with the VLAN" on page 140

Creating two VLANs "byPort"

To create two VLANs "byPort," see "Creating a VLAN "byPort" and adding ports" on page 119. One VLAN must have only one ATM port. The second VLAN can have one or multiple Ethernet ports.

One VLAN must have only one ATM port.

The second VLAN can have one or multiple Ethernet ports.

Configuring IPX network numbers

To configure the IPX network numbers for both VLANs:

1   From the Device Manager menu bar, choose VLAN > VLANs.

The VLAN dialog box opens with the Basic tab displayed (Figure 52).

Table 41 on page 120 describes the VLAN Basic tab fields.

2   Click one of the VLANs.

3   Click IPX.

The IPX VLAN dialog box opens (Figure 62).

Figure 62   IPX VLAN dialog box

Table 48 describes the IPX VLAN dialog box fields.

Table 48   IPX VLAN dialog box fields

Field	Description
VlanId	Unique VLAN identifier.
NetAddr	IP subnet address of this VLAN.
Encap	Encapsulation format.

4   Click Insert.

The IPX VLAN, Insert dialog box opens (Figure 63).

Figure 63 IPX VLAN, Insert dialog box
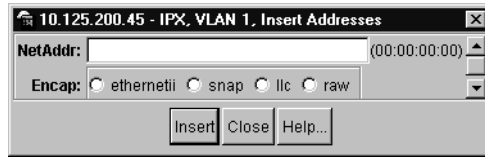
Table 49 describes the IPX VLAN, Insert dialog box fields.

Table 49 IPX VLAN, Insert dialog box fields

Field	Description
NetAddr	The IP address of this VLAN.
Encap	Encapsulation type: ethernetii, snap, llc, or raw.

5 In the NetAddr field, configure the IPX network numbers for the VLAN.

6 In the Encap field, click the encapsulation type.

7 Click Insert.

The IPX VLAN, Insert dialog box closes, and the IPX tab is redisplayed.

8 Click Close.

Enabling IPX forwarding

To enable IPX forwarding on both VLANs:

1 From the Device Manager menu bar, choose IPX Routing > IPX.

The IPX dialog box opens with the Globals tab displayed (Figure 64).

Figure 64 Globals tab

Table 50 describes the Globals tab item.

Table 50 Globals tab item

Item	Description
RoutingEnable	Enables routing.

2 Click RoutingEnable.

3 Click Apply.

4 Click Close.

Enabling IPX network number forwarding

To enable forwarding for the IPX network number:

1 From the Device Manager menu bar, choose IPX Routing > IPX.

The IPX dialog box opens with the Globals tab displayed.

2 Click the Circuits tab.

The Circuits tab opens (Figure 65).

Figure 65   Circuits tab
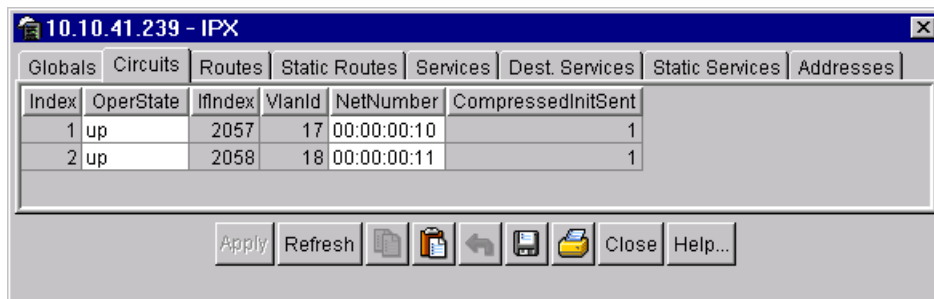
Table 51 describes the Circuits tab fields.

Table 51   Circuits tab fields

Field	Description
Index	Unique value assigned to each interface.
OperState	Current operational state of the interface.
Index	Interface Index.
VlanId	Unique VLAN identifier.
NetNumber	Network number.
CompressedInitSent	Compressed.

3   In the OperState field, enter "up" for all IPX network numbers created in this procedure.

4   Click Apply.

5   Click Close.

The Circuits tab closes, and the Globals tab is redisplayed.

6   Click Close.

Configuring a null-encapsulation PVC

See "Configuring two ATM 1483 PVCs on the same ATM port" on page 127.

Associating the PVC with the VLAN

See "Associating the PVC with the VLAN" on page 124.

Follow the instructions there except, in the ConnectType field, select Ipx instead of bridged.

Configuring an IPX routing 1483 PVC using the CLI

To configure the Passport 8672ATM Module for this setup using the CLI:

1 To create two VLANs by port, enter:

```
config vlan 2 create byport 1

config vlan 3 create byport 1
```

2 To add an ATM port (in this example, 1/1) and several Ethernet ports (in this example, 3/40 to 3/48) to the VLAN, enter:

```
config vlan 2 port add 1/1

config vlan 3 port add 3/40-3/48
```

3 To configure IPX network numbers on both VLANs (use two different subnets), enter:

```
config vlan 2 ipx <ipx network number>

config vlan 3 ipx <ipx network number>
```

4 To enable forwarding on IPX, enter:

```
config ipx forwarding enable <ipx network number>
```

5 If necessary, use the following CLI commands to change RIP parameters:

```
config ipx rip <sub-command>

config ip forwarding <sub-command>
```

6 To configure a 1483 PVC with LLC/SNAP-encapsulation and UBR, enter:

```
config atm 1/1 pvc create 0.100 enc 1483-llc serv
ubr
```

7 To associate a 1483 IPX routed PVC with a VLAN, enter:

```
config atm 1/1 pvc 1483 ipx create 2 0.100 <IPX
network number of existing vlan>
```

Appendix A
Technical Specifications

This appendix lists the technical specifications for the Passport 8672ATM Module.

Environmental specifications

Operating temperature:	5° to 40° C (41° to 104° F)
Storage temperature:	-25° to 70° C (-13° to 158° F)
Operating humidity:	85% maximum relative humidity, noncondensing
Storage humidity:	95% maximum relative humidity, noncondensing
Operating altitude	3,000 m (10,000 feet) maximum
Storage altitude	Up to 9,000 m (30,000 feet) above sea level
Free fall/drop:	ISO 4180-s, NSTA 1A
Vibration:	IEC 68-2-6/34
Shock/bump:	IEC 68-2-27/29

Physical specifications

Height:	1.050 inches
Width:	12.968 inches
Depth:	10.950 inches
Weight (single module):	3.12 lbs.

Performance specifications (64-byte packets)

Mean time between failure (MTBF)	85,000 hours
Frame length:	64 to 1750 octets
Safety agency approvals	UL Listed (UL 1950)

	CUL CSA 22.2 No. 950
	IEC 950/EN 60950
	CE mark
	CB Scheme Test Report and Certification
	NOM (NOM-019-SCFI-1994)
Electromagnetic emissions	
Meets requirements of:	US: FCC, CFR 47, Part 15, Subpart B, Class A
	Canada: ICES-003, Issue-2, Class A
	Australia/New Zealand: AS/NZS 3548:1995, Class A
	Japan: VCCI V-3/97.04, Class A
	Taiwan: CNS 13438,Class A
	EN 55 022:1998/CISPR 22:1997), Class A
	CE Mark
	Electromagnetic Immunity: EN55024:1998/ CISPR24:1997

Appendix B
Factory defaults

Table 52 shows the default settings on the Passport 8672ATM Module as it comes from the factory, as well as the management tool to change parameters.

Table 52 Factory default settings for the Passport 8672ATM Module

Parameter	Default	Management tool
VPI bits	4	Device Manager
VCI bits	7	Device Manager
Scrambling	Enabled	Device Manager
Framing	SONET	Device Manager
Clock source	Free-running	Device Manager
Loopback mode	Internal	Device Manager
Encapsulation	LLC-SNAP	Device Manager
Bit rate	UBR	Device Manager
Traffic shaping	Disabled	Device Manager

For more information on factory defaults, refer to:

- *Reference for the Passport 8000 Series Command Line Interface Switching Operations, Release 3.1*
- *Reference for the Passport 8000 Series Command Line Interface Routing Operations, Release 3.1*
- *Reference for the Passport 8000 Series Management Software Switching Operations, Release 3.1*
- *Reference for the Passport 8000 Series Management Software Routing Operations, Release 3.1*

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